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RADIOTHERAPY OF EARLY CANCER OF THE LARYNX

Five Year Results in One Hundred and Fifty-Six Cases

MAX CUTLER, M.D.
Chicago

Although cancer of the larynx is one of the less common forms of neoplastic disease, it is nevertheless one of the most important. Several aspects of laryngeal cancer command special attention. The majority of lesions affect the true vocal cord, and hoarseness is an early symptom in 95 per cent of the cases. Early lesions are curable in more than 80 per cent of cases by a limited operation or by radiotherapy, with little impairment of the voice, and finally many lesions too advanced for laryngofissure and formerly requiring total laryngectomy are now curable as a result of recent advances in radiotherapy, with restoration of voice to a normal or nearly normal state. Here, then, is a combination of favorable factors related to early diagnosis and effective treatment which render this disease one of the most hopeful of all the major forms of cancer.

The purpose of this report is to present the results of radiotherapy in a consecutive series of 156 microscopically proved cancers of the larynx treated in the Chicago Tumor Institute from April 1938 through June 1944,[1] with a minimum observation period of five years.[2]

In 1922 Regaud, Coutard and and Hautant [3] recorded the first successful results of radiotherapy in laryngeal cancer. This report dealt with 6 advanced inoperable carcinomas treated with roentgen rays. Ten years later Coutard [4] reported 27 per cent five year cures in a series of 142 patients treated in the Curie Institute of Paris. Ahlbom's [5] series reported in 1941, consisted of 76 patients treated in the Radiumhemmet, Stockholm, between 1930 and 1939. Only 13 lesions were limited to the vocal cord, and all were cured either by laryngofissure and postoperative telecurietherapy or by telecurietherapy alone. Two-thirds of the advanced lesions were cured by laryngectomy and postoperative irradiation. In 1947 Lenz [6] reported 27 per cent cures in 110 mostly advanced cases of cancer treated with roentgen rays. In 1946 Baclesse [7] reported 17 per cent five year cures among 341 carcinomas of the endolarynx. Most of the lesions were advanced. In 1948 the same author [8] was able to show a marked improvement in results by citing 34 per cent five year cures for the years 1940 to 1942 as compared with 17 per cent between 1919 and 1939. This improvement Baclesse attributed to an increase in the dose and the treatment time and a reduction of the size of the fields.

There has been a recent trend toward the treatment of operable lesions by radiotherapy which has resulted in several reports; notably by Blady and Chamberlain,[9] Lederman,[10] Harris [11] and Cutler. In 1944 Blady and Chamberlain reported five year results in 36 patients, 23 of whom had intrinsic lesions. The net five year survival for this latter group of 23 patients was 59 per cent. Kramer,[12] in 1946, reported 32 early lesions of the vocal cord treated by Harris in the Mount Sinai Hospital, New York. Twenty-two of 26 patients treated three or more years prior to the report were free from disease, an 85 per cent cure rate, which the author cites as comparing favorably with the best results of laryngofissure. This high curability illustrates what can be accomplished by adequate radiotherapy of selected early lesions. In 1947 Harris, Kramer and Silverstone [13] reported 55 per cent five year cures in 80 patients treated with roentgen rays (73 per cent for intrinsic lesions and 40 per cent for extrinsic lesions). In 1946 I [14] reported 42 per cent five year cures among 47 patients, 31 of whom had extrinsic inoperable lesions. The curability in the operable group was approximately 50 per cent. Lederman,[10] in 1947, reported on 40 patients treated with teleradium, of whom 14 were free from disease after five years. Twelve of 17 operable lesions were apparently cured.

In regard to the results of laryngectomy, the high curability of 73.5 per cent cited by MacKenty [15] in 1929 is readily explained by the fact that in a large proportion of his cases the carcinoma was so early as to be curable either by laryngofissure or radiotherapy. The

Dr. L. B. Bernheimer helped with the surgical aspects of this problem.
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1. Fifty-two patients were selected for treatment at the Institute from among those seen at the Veterans Administration Hospital, Hines, Ill.

2. This is a further study of 107 patients treated between 1938 and 1942 and presented at the Thirty-third Annual Meeting of the Radiological Society of North America, Boston, Nov. 30-Dec. 5, 1947.

3. Regaud, C.; Coutard, H., and Hautant, A.: Rapport sur la Curie thérapie et la roentgentherapie dans le cancer du larynx, Ann. d. mal. de l'oreille du larynx **41**: 967-969, 1922.

4. Coutard, H.: Roentgen Therapy of Epitheliomas of Tonsillar Region, Hypopharynx and Larynx from 1920 to 1926, Am. J. Roentgenol. **28**: 313-331, 1932.

5. Ahlbom, H. E.: Die Resultate der Strahlenbehandlung von endolaryngealen Karzinomen am Radiumhemmet, Stockholm, von 1930 bis 1939, Acta radiol. **22**: 539-546, 1941.

6. Lenz, M.: Roentgen Therapy in Cancer of the Larynx, J. A. M. A. **134**: 117-121 (May 10) 1947.

7. Baclesse, F.: Radiothérapie des cancers du larynx (endolarynx). Résultats éloignés obtenus dans 341 cas irradiés à la Fondation Curie, J. de radiol. et d'électrol. **27**: 63-64, 1946.

8. Baclesse, F.: La roentgentherapie des cancerres du larynx (resultats apres cinq. ans.), Bul. du cancer **35**: 399-403, 1948.

9. Blady, J. V., and Chamberlain, W. E.: Treatment of Cancer of Larynx by Roentgen Irradiation, Am. J. Roentgenol. **51**: 481-495, 1944.

10. Lederman, M.: Personal communication to the author.

11. Harris, W., cited by Kramer.[12]

12. Kramer, R.: Radiation Therapy in Early Laryngeal Cancer, J. Mt. Sinai Hosp. **14**: 24-28, 1947.

13. Harris, W.; Kramer, R., and Silverstone, S. M.: Roentgen Therapy for Carcinoma of the Larynx: Fifteen Years Experience, Radiology **51**: 708-716, 1948.

14. Cutler, M.: Cancer of the Larynx: Five Year Results of Concentration Radiotherapy, Arch. Otolaryng. **43**: 315-330 (April) 1946.

15. MacKenty, J. E.: Laryngeal Cancer: Early Diagnosis and Treatment, Arch. Otolaryng. **9**: 237-244 (March) 1929.

exceptionally low curability of 15 per cent cited by such pioneer laryngologists as Gluck and Soerenssen [16] is due to the fact that they accepted for operation many cancers which others would have rejected as inoperable. In 1945 Colledge [17] reported 60 per cent cures by laryngectomy and Martin [18] 58 per cent (of 36 cases). New and Waugh,[19] in 1934, reported 56.1 per cent, and more recently (1947) New, Figi and others [20] reported 60.2 per cent of traced patients well five years after laryngectomy, with a hospital mortality of only 1.9 per cent (104 laryngectomies, 88 patients traced). As a result of important advances in preoperative and postoperative care, the mortality of laryngectomy has been reduced to such a low figure that the primary risk in patients of good physical condition need no longer contraindicate the operation.

CLASSIFICATION

In the past it has been customary to divide cancer of the larynx into two main forms, extrinsic and intrinsic. Some confusion exists as to the exact definition of these terms, depending on whether the author's classification is anatomic or surgical. The anatomic classification refers to the primary site of origin of a lesion, regardless of its subsequent extension. Thus, all tumors which arise within the larynx, regardless of their extension to the pharynx, remain by definition intrinsic. According to the surgical classification, extrinsic carcinoma includes lesions arising in the aryepiglottic folds, piriform fossae and postcricoid region as well as those arising within the laryngeal cavity which have spread outside the boundaries of the larynx.

For practical purposes I have used two classifications in this report. One is based on mobility of the laryngeal structures and the other on surgical indications. The former classification is useful because it has been our experience that partial or complete mobility generally indicates radiosensitivity and radiocurability. Classification based on operability and on whether the lesion is amenable to laryngofissure or laryngectomy permits a comparison of surgical and radiotherapeutic results.

TECHNIC

The term concentration radiotherapy was introduced by me [21] to emphasize two factors: the administration of a large total dose in a relatively short period (eighteen days) and the use of an increasing dose through a diminishing portal. The principles and technic of this method have been previously recorded. In the divided dose technic roentgen treatments are given daily to two lateral fields. The treatment period varies between four and six weeks and the total dose between 6,000 and 7,000 r. In the technic used by my colleagues and me the treatment is much more intense. Thus, instead of 6,000 to 7,000 r in four to six weeks to two fields, between 6,000 and 6,500 r, measured on the skin, are given in eighteen days to one field. For the smaller lesions the dose is increased daily as the size of the portal is diminished.

Experience has taught us that the more radioresistant lesions require not only a larger total dose but also a larger daily dose; thus, a superficial papillary carcinoma of the true cord can be cured by 3,000 r units given through each of two portals in thirty to forty days, but a more extensive squamous carcinoma which has caused partial or almost complete fixation of the laryngeal structures requires more intense irradiation.

Most of the patients have been treated with 400 kilovolt roentgen rays and telecurietherapy. A small number have been treated with 200 kilovolt roentgen rays. The average roentgen intensity has been about 7 r per minute. With certain exceptions, the size of the field was reduced as the dose was increased.

The eleven day technic formerly used yields excellent results in advanced lesions, but, as previously reported, it is too intense for certain patients; hence, as of July 1945 the treatment time was increased to eighteen and sometimes twenty days. The following technic is currently in use:

1. For early intrinsic carcinoma of one or both true or false cords with complete or partial mobility: 400 kilovolts; 5 milliamperes; filter, 5 mm. of copper; distance, 84 to 115 cm.; single lateral port, 5 by 5 cm., gradually diminished to 3 by 3 cm.; average intensity, about 7 r per minute; two equal treatments daily for eighteen days, beginning with 100 r twice a day and increasing to 250 r twice a day; total dose, 6,000 r measured on the skin.

2. For more extensive intrinsic and for extrinsic carcinoma with or without regional cervical metastasis and with partial or complete fixation: 400 kilovolts; 5 milliamperes; filter, 7 to 8 mm. of copper; distance, 75 to 80 cm.; single lateral port, 7 by 5 cm. gradually diminished to 4 by 3 cm.; average intensity, about 6 r per minute; two equal treatments for eighteen days, beginning with 85 r twice a day and increasing to 275 r twice a day; total dose, 6,500 r measured on the skin. Areas of metastasis too extensive to be included in the fields receive additional irradiation.

Telecurietherapy.—Much credit is due to Janeway and Quick for pioneer work in the radium treatment of cancer of the larynx. Some striking results are recorded by Quick [22] in the Janeway Memorial Lecture delivered at the Fifth International Congress of Radiology in 1937. Subsequent interesting reports on radium treatment of cancer of the larynx include those of Harmer,[23] Ahlbom [5] and Colledge and Lederman.[24]

The telecurietherapy apparatus [25] of the Chicago Tumor Institute contained 10 Gm. of radium until September 1943, when 3 Gm. was released for war purposes. The apparatus has now been restored to its original strength. The filter is 1 mm. of platinum, the target skin distance is 12.5 cm. and the portals vary from 4 by 4 cm. to 8 cm. in diameter.

The following telecurietherapy technics are in use: (*a*) 90,000 milligram hours to each of two lateral fields in eighteen days; field, 6 by 6 cm. reduced to 5 by 5 cm.; (*b*) 100,000 milligram hours to the side of the lesion and 40,000 milligram hours to the opposite side in twenty days; field, 8 cm. in diameter for the first 100,000 milligram hours reduced to 6 by 6 cm. for the last 40,000 milligram hours.

16. Gluck, T., and Soerenssen, J.: Die Exstirpation und Resektion des Kehlkopfes, in Katz, L., and Blumenfeld, F.: Handbuch der speziellen Chirurgie des Ohres und der oberen Luftwege, ed. 4, Leipzig, Curt Kabitzsch, 1932, vol. 4, chap. 1, p. 1.

17. Colledge, L., and Lederman, M.: Discussion on Treatment of Carcinoma of the Larynx, Proc. Roy. Soc. Med. **38**: 354-356, 1945.

18. Martin, H.: Cancer of the Larynx, in Nelson Loose-Leaf Living Surgery, New York, Thomas Nelson & Sons, 1947, pp. 431-504.

19. New, G. B., and Waugh, J. M.: Curability of Carcinoma of the Larynx, Surg., Gynec. & Obst. **58**: 841-844, 1934.

20. New, G. B.; Figi, F. A.; Havens, F. Z., and Erich, J. B.: Carcinoma of the Larynx: Methods and Results of Treatment, Surg., Gynec. & Obst. **88**: 623-629, 1947.

21. Cutler, M.: Concentration Method of Radiotherapy for Cancer of the Mouth, Pharynx and Larynx, J. A. M. A. **117**: 1607-1610 (Nov. 8) 1941.

22. Quick, D.: Carcinoma of the Larynx, Am. J. Roentgenol. **38**: 621-853, 1937.

23. Harmer, W. D.: Relative Value of Radiotherapy in the Treatment of Cancers of the Upper Air Passages, University of London Semon Lecture, London, John Murray, 1932; St. Barth. Hosp. Rep. **65**: 17-101, 1932.

24. Colledge and Lederman,[17] pp. 356-359.

25. The Union Minière du Haut Katanga made available the 10 Gm. radium bomb.

Complications.—Patients with advanced cancer of the larynx are in poor general condition; some are so ill that they die soon after irradiation is begun and a certain number die in connection with tracheotomy or gastrostomy. As a group, therefore, these patients have a poor prognosis from the beginning. Deaths from bronchopneumonia are common as a natural consequence of the advanced disease. It is not surprising, therefore, that death occurs not infrequently at or about the height of the irradiation reaction, by which it is often precipitated.

The disintegration of the tissues in the tumor bed following irradiation results in a local defect from which the patient often cannot recover. Under the most favorable conditions, the carcinoma is sterilized and recovery ensues in spite of the extent of the original lesion. In cases of advanced and more radioresistant larynx may be sterilized but the advanced stage of the disease, poor general condition of the patient and the intensity of the irradiation result in radionecrosis. Laryngectomy has been performed in some of these cases and the microscopic examination has confirmed the absence of cancer. A number of these patients have survived.

Although these complications are more likely to occur after intensive irradiation, they may follow moderate irradiation. Conversely, debilitated patients with advanced disease sometimes tolerate intensive irradiation and escape these complications. Intensity of irradiation is, therefore, not the sole factor.

In this series 2 patients died as a direct result of radionecrosis. The treatment of both was too intense in the light of present knowledge. In 7 other fatal cases varying degrees of necrosis were present, but the

TABLE 1.—*Five Year Results of Radiotherapy in Relation to Extent of Carcinoma and Mobility of Laryngeal Structures**

Stage of Carcinoma	Total No. of Patients		1938		1939		1940		1941		1942		1943		1944	
	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well
Cords movable or partly fixed	58	37	5	2	5	3	4	3	14	7	9	7	13	10	8	5
Cords fixed; advanced cancer; regional metastasis	98	18	10	2	6	1	9	2	25	5	30	3	30	2	8	3
Total	156	55														

* Eight patients died from causes other than cancer (without recurrence) less than five years after treatment, leaving 55 five year cures in 148 cases, or 37 per cent (55 per cent if the indeterminate cases are not deducted). Of the 8 patients who died from causes other than cancer (except for 1 case of cerebral metastasis), 2 died from perforated gastric ulcer, 1 one year and the other three years and five months after treatment; 3 died from coronary disease, 1 one year and seven months, 1 three years and four months and 1 three years and eight months after treatment; 1 died from cerebral hemorrhage, two years after treatment; 1 died from cerebral metastasis four years and four months after treatment, and 1 died from alcoholism four years and nine months after treatment.

Since publication of these cases in 1946, 5 patients have died from causes other than cancer (without recurrence) more than five years after treatment (five and a half, six, six, seven and seven years) and are listed as cured. One died with probable recurrence four years after treatment and is counted as lost, and 1 counted as lost in our 1946 report has been found free from cancer.

One patient (H. L.), treated in 1942, died about five years later with probable recurrence and is counted as lost. One patient (G. J.), treated in 1941, experienced a slight recurrence in 1946 and is well following local excision through a laryngofissure. This patient is counted as cured. One patient (J. D.), treated in 1944, underwent resection of cervical lymph nodes four years later and is free of disease. He is listed as well. Eleven patients are well and free of disease after combined radiotherapy and laryngectomy but are not counted as cured.

TABLE 2.—*Five Year Results of Radiotherapy in Relation to Operability and Surgical Indications**

Stage of Carcinoma and Surgical Indications	Total No. of Patients		1938		1939		1940		1941		1942		1943		1944	
	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well	Treated	Well
Extrinsic, inoperable	87	15	11	2	5	1	9	2	23	3	19	4	18	2	2	1
Intrinsic, suitable for laryngectomy	69	25	3	2	4	1	1	1	11	6	6	3	10	5	13	7
Intrinsic, suitable for laryngofissure	21	15	1	0	2	2	3	2	5	3	4	3	5	5	1	0
Total	156	55														

* See note, table 1.

lesions, however, the carcinoma may be only partly sterilized. In these circumstances, and if the patient survives the irradiation, the treatment is followed by varying periods of improvement, with ultimate recurrence and death. These are the palliative results of radiotherapy. When the lesion is uncontrolled and the local and general conditions are too unfavorable, the patient fails to show an initial improvement, continues to lose ground and dies soon after the irradiation, generally of bronchopneumonia. In still another group with advanced disease the lesion is sterilized in spite of its extent, but the patient succumbs soon after treatment and the autopsy shows no sign of the original cancer. In this group it seems that the destruction of an advanced lesion left a defect so extensive and in such relation to vital structures that it could not be repaired in time to prevent such fatal complications as infection or hemorrhage or both. Undoubtedly the poor general condition of the patient is a crucial factor in these deaths. Finally, an extensive carcinoma of the general condition of all the patients was so poor and the lesions were so advanced that these factors alone were sufficient to account for the deaths, although the final outcome was probably precipitated by the irradiation. In a small group, varying degrees of radionecrosis developed, followed by healing. In several laryngectomies performed for suspected recurrences, examination of the larynx failed to disclose any sign of carcinoma but only necrosis of laryngeal tissues with marked secondary infection.

Results.—Table 1 indicates that of 98 patients with advanced disease in whom the cords were completely fixed and in many cases accompanied with metastasis to regional lymph nodes, 18 are living and apparently cured more than five years.

Of 58 patients with movable or partly fixed cord lesions, 37 were free from disease after five years. Six of the 58 died from causes other than cancer (without recurrence) less than five years after treatment. If these 6 cases are counted as lost from cancer, the

curability is 37 of 58, or 64 per cent. If these cases are classed as "indeterminate," the percentage of five year cures is 37 of 52, or 71 per cent.

Table 2 shows 15 apparent cures in 87 cases of advanced, probably inoperable lesions. (Three patients died of causes other than cancer, apparently free from disease, less than five years after treatment.)

Of 48 patients with lesions too advanced for laryngofissure and suitable for laryngectomy, 25 are apparently cured more than five years. (Four died of causes other than cancer, apparently without recurrence, less than five years after treatment.) The curability in this important group is 25 of 48, or 52 per cent, if the 4 "indeterminate" cases are counted as lost from cancer and 25 of 44, or 57 per cent, if the 4 "indeterminate" cases are deducted.

Of 21 patients with lesions amenable to laryngofissure, 1 died from other causes, apparently free of cancer, less than five years after treatment and 15 were well and free of disease more than five years. It should be noted that of the last 6 patients treated in 1943 and the first half of 1944, 5 are well and free of disease.

Of the 43 patients reported on in 1946 as apparently cured, the following were included in the last communication (October 1948)[26]: Five died, apparently free from cancer, of other causes five and a half, six, six, seven and seven years, respectively, after treatment. One died four years after treatment, with probable recurrence, and 1 patient who had been lost track of and counted as lost was found free from disease.

Since the last report, 1 patient treated in 1942 and reported well died from metastases in 1947. The lesion was very advanced and involved the arytenoid, false cord and piriform fossa. Regional adenopathy developed soon after treatment, and the survival of the patients for almost five years represents a good palliative result.

SELECTION OF TREATMENT

In the choice between laryngectomy and radiotherapy for a given case of operable intrinsic carcinoma of the larynx, every aspect must be weighed and no set rules can be applied. The following criteria have been helpful to us as a guide:

General Considerations.—The patient's age, general condition, life expectancy, and the presence or absence of serious organic disease are to be considered.

Extent of the Lesion.—When the lesion is so advanced as to be inoperable and apparently incurable by radiotherapy, irradiation should be designed with a view to palliation.

Site of Origin.—Lesions arising in the ventricle, false cords or base of the epiglottis are generally more radiosensitive, whereas subglottic lesions are usually more radioresistant. The radiosensitivity of lesions of the true cord depends largely on the degree of infiltration.

Microscopic Structure.—It is generally agreed that the more undifferentiated carcinomas have a worse surgical prognosis, and some clinicians are influenced by the histologic grade of the biopsy specimen in their choice of treatment. Personal experience indicates that it is hazardous to draw conclusions from the histologic structure of a biopsy specimen except in a general way. Actually it is not safe, on this basis, to express a dogmatic opinion that the lesion is of a high or low grade of malignancy or that it is radioresistant or radiosensitive. To this general statement there are two exceptions: When the microscopic structure shows marked anaplasia, especially with the formation of spindle cells, the lesion is usually highly malignant and offers an unfavorable prognosis regardless of whether surgical treatment or irradiation is used. The other exception is when the epithelial cells are uniformly small and transitional in type, especially when they show a convoluted plexiform arrangement. Cancers of this type are generally radiosensitive.

The view that squamous carcinoma is radioresistant has become entrenched in the literature. Every effort should be made to correct this fallacy, which is based on two errors. One is the belief that squamous carcinoma is resistant to irradiation; the fact is that when not infiltrating it is sensitive to adequate radiotherapy. The other error lies in dependence on a single biopsy specimen as giving a reliable histologic picture of the lesion, whereas there may be, and frequently are, other areas in the same tumor that are undifferentiated.

Mobility of Laryngeal Structures in Relation to Radiosensitivity and Radiocurability.—The gross character of the lesion influences its radiosensitivity and radiocurability. Generally speaking, papillary lesions are radiosensitive and infiltrating lesions relatively radioresistant. Mobility of the laryngeal structures generally indicates that the lesion is early or, if more advanced, that it is papillary and not infiltrating. From the point of view of irradiation, such a lesion is radiosensitive and to a considerable degree radiocurable, the curability being directly related to the extent of involvement, the degree of malignancy, the general condition of the patient and the efficiency of the treatment.

Partial or complete fixation is often due to inflammation caused by secondary infection and not to carcinomatous invasion. Such fixation occurs especially after one or more biopsies. It generally begins to diminish and disappears soon after irradiation is begun, and in cases of doubt this response is a useful sign in interpreting the cause of the fixation. Rapid increase in mobility also occurs after a small amount of irradiation when the lesion is highly radiosensitive. From a practical point of view, the early and rapid response is an indication of radiosensitivity and probable radiocurability.

No sharp line of demarcation can be drawn between radiosensitive and radioresistant lesions. The quality of radiosensitivity varies in degree, and there is no accurate method of expressing the variation. This fact makes it exceedingly difficult to evaluate new methods of treatment.

COMMENT

Two main problems arise in connection with treatment: (1) the choice between surgical intervention and radiotherapy for early carcinoma of the true cord amenable to laryngofissure and (2) the choice between laryngectomy and radiotherapy for operable laryngeal cancer beyond the scope of laryngofissure.

Regarding the first, laryngofissure is a well established procedure yielding 80 to 85 per cent cures in carefully selected cases of cancer of the vocal cord. The results of radiotherapy in this group are at least as good as those of surgical intervention, with the advantage that generally the voice after radiotherapy is better (Baclesse, Ahlbom, Lederman, Lenz, Harris, Kramer and Cutler). Laryngofissure yields the best results in lesions limited to the middle or anterior two thirds of one cord with complete mobility. Once the

26. Cutler, M.: Cancer of the Larynx, Five-Year Results of Radiotherapy, Radiology 51: 509-520, 1948.

disease involves the posterior extremity of the cord, crosses the midline, extends subglottically, involves the false cord or becomes partly fixed, it is no longer suitable for laryngofissure. If the histologic structure, as indicated by the biopsy, shows a highly malignant anaplastic carcinoma (grade IV, Broders), most laryngologists prefer radiotherapy.

Laryngofissure has a long record of favorable results and should not be abandoned. At the same time adequate recognition must be given to the increasing evidence that radiotherapy yields equally good results, with a better voice, and the patient should be allowed to choose the treatment he prefers. If laryngofissure is used, one should choose the case carefully, excluding lesions which are not strictly limited. Recurrences following laryngofissure do not respond as well to radiotherapy as does the original lesion, and Colledge [17] has warned against exploratory laryngofissure on the grounds that if the incision cuts through tumor tissue the best technic for the radical operation is thereby made impossible.

Between laryngectomy and radiotherapy the choice is simple when the patient's age or general condition contraindicates radical surgical procedures, when the lesion is clearly inoperable or when the patient refuses laryngectomy; otherwise the choice may be very difficult. The natural reluctance of the patient to lose his larynx merely increases the responsibility of the surgeon and the radiotherapist.

It has been stated that early cord lesions suitable for laryngofissure constitute the best target for radiotherapy and that radiotherapy is a much more efficient substitute for laryngofissure than for laryngectomy. I disagree with this view. Radiotherapy is much more important than as a substitute for laryngofissure in the group of lesions beyond the scope of laryngofissure, for which laryngectomy is the only surgical alternative. Lesions unsuitable for laryngofissure by virtue of site, extent or histologic structure but still not completely fixed by carcinomatous invasion are ideally suited for radiotherapy, with a curability equal to that of laryngectomy.

In 1931 I began to treat selected patients with operable carcinoma of the true cords by irradiation. At first irradiation was tried only when the patient refused laryngectomy or when there were general contraindications to a radical operation. As the results improved, lesions of borderline operability were treated, and finally, in 1938, irradiation of operable intrinsic lesions was practiced by choice, provided the laryngeal structures were not completely fixed by carcinoma.

The present procedure is to limit laryngectomy to cases of intrinsic cancer in which there is total fixation of the laryngeal structures and in which there are no local or general contraindications to surgical treatment, provided it is established that the fixation is due to carcinomatous invasion and not to inflammation. As the results of irradiation improve, the classification of operability becomes stricter. When the cords are still movable or only partly fixed, irradiation is chosen in preference to surgical removal regardless of the histologic grade or the extent of the lesion. In borderline cases irradiation may be tried when a patient asks for a chance to be cured by this method, with the understanding that laryngectomy may still be necessary. In this connection, the radiotherapeutic test may be used; if the response is favorable, the treatment is completed. When the lesion appears to be unfavorable for radiotherapy and amenable to laryngectomy, the patient is urged to accept surgical treatment, but if he refuses he is given irradiation with the understanding that the chances of success are remote and that he will still probably be faced with laryngectomy. This course is justified because it is now established that previous correct irradiation does not interfere seriously with subsequent laryngectomy. It is interesting that a number of patients have been cured by this method.

The selection of treatment is highly individual, and no rules can be applied. The attempt to choose the best treatment for each case is guided by the following criteria: (*a*) the operability of the lesion and the presence or the absence of metastatic involvement of cervical lymph nodes; (*b*) the general condition of the patient, his life expectancy and the presence of serious organic disease; (*c*) the character of the lesion with respect to origin, extent, histogenesis, microscopic structure and, more particularly, the extent to which it has infiltrated and fixed the laryngeal structures, and (*d*) the patient's temperament and his ability to adjust himself to laryngectomy and the extent to which his work and economic status are dependent on the normal use of the voice.

In the treatment of clearly operable cancer of the larynx, the choice between laryngofissure and irradiation is not nearly so important as the choice between laryngectomy and irradiation.

One crucial question is to what extent, if any, are the chances for a successful operation jeopardized by radiotherapy. Much, of course, depends on the type of irradiation. With the use of smaller fields and careful attention to all the other known factors designed to reduce irradiation injury to normal tissues, the chances of complications are so reduced as to be negligible in most instances. It is becoming generally accepted that previous correct irradiation does not seriously complicate subsequent laryngectomy. This is especially true with current technics using small fields.

In 1938, Jackson and Jackson [27] stated that there are growths classed as operable for which the patient is justified in choosing irradiation in preference to operation and predicted that the future would probably witness a progressive decrease in the relative number of laryngectomies. This prediction has proved to be correct. Since this statement was made, significant progress has been achieved in the radiotherapy of laryngeal cancer, which has been reflected in the five year end results published from several clinics. In a recent review of a personal series of 93 intrinsic carcinomas of the larynx observed over a period of twenty years Negus [28] arrived at the following conclusions regarding the choice of treatment: For growths limited to the membranous vocal cord he advised laryngofissure; for unilateral cordal lesions extending onto the arytenoid cartilage or reaching the posterior commissure and without fixation he advised radiotherapy, and for lesions accompanied with chronic hypertrophic laryngitis, for extensive subglottic disease and for advanced lesions with marked fixation of the cord he advised total laryngectomy. Scott Stevenson,[29] of London, expressed the same opinion. He stated that when the growth is situated on one vocal cord and extends to the arytenoid or reaches the anterior commissure, but without fixation of the cord, irradiation is the method of choice because

27. Jackson, C., and Jackson, C. L.: Cancer of the Larynx, J. A. M. A. **111**:1986-1993 (Nov. 26) 1938.
28. Negus, V. E.: Intrinsic Cancer of the Larynx: Review of a Series of Cases, Proc. Roy. Soc. Med. **40**:515-522, 1947.
29. Stevenson, R. S.: Recent Advances in Oto-Laryngology, ed. 2, London, J. & A. Churchill, Ltd., 1949.

surgical treatment would entail removal of the whole larynx. Thus, Negus and Scott Stevenson concur with me that lesions too advanced for laryngofissure but still not totally fixed are better treated by radiotherapy than by total laryngectomy. It is interesting that this view is taken by leading laryngologists and is based on a wealth of personal surgical experience and familiarity with the results of modern radiotherapy obtained by colleagues in the field of radiology. Windeyer's [30] results and conclusions parallel those of Negus.

SUMMARY AND CONCLUSIONS

In a series of 156 consecutive microscopically proved cases of laryngeal cancer treated by radiotherapy there were 37 per cent five year cures.[31] More than half of the lesions were inoperable. In 48 cases in which the lesions were too advanced for laryngofissure and for which the only surgical alternative was total laryngectomy, there were 57 per cent five year cures. The inoperable group yielded 17 per cent cures.

Among 58 cases in which the cords were not completely fixed there were 71 per cent cures. These results lead to the following conclusions: Radiotherapy is indicated in selected cases. When the cords are freely movable or only partly fixed, curability is high and radiotherapy is the method of choice. Total laryngectomy is reserved for advanced lesions with complete fixation of the cords occurring in surgical subjects with a good life expectancy, provided the fixation is caused by the carcinoma. The most important contribution of radiotherapy to laryngeal cancer relates to the group of lesions beyond the scope of laryngofissure, for which total laryngectomy is the only surgical alternative. When such lesions are not yet completely fixed by carcinomatous invasion, they are ideally suited for radiotherapy, and the curability is at least equal to that of total laryngectomy.

21 West Elm Street.

ABSTRACT OF DISCUSSION

Dr. John V. Blady, Philadelphia: When a cord has lost its motility, it indicates involvement and infiltration of the laryngeal musculature either by the tumor or by infection. This is not a contraindication to irradiation. When one or both sides of the larynx becomes fixed, then the patient is a problem more for surgery than for irradiation. Irradiation may be used only if other criteria indicate it or if there are some other extenuating circumstances. The fixation of the larynx means that the tumor has invaded, in all probability, bone and cartilage of the larynx, the thyroid cartilage, except in cases in which there is a large, bulky tumor not permitting the side of the larynx to move. Except in those cases we feel that surgery would be preferable, and the complications which Dr. Cutler has referred to and which we, too, have observed in previous years occur in just this type of patient, because after the irradiation the tumor has regressed and what is left is an exposed cartilage. Infection ensues, and osteoradionecrosis develops. If the patient still has a chance for a cure, laryngectomy will give that chance. If the patient is beyond the possibility of a cure, the laryngectomy may be considered as a palliative procedure. Laryngectomy is preferable because this complication of osteoradionecrosis is not a pleasant one. The morbidity that ensues lasts for months. It is necessary to remove completely every piece of cartilage from the larynx sometimes, and eventually a radiologic laryngectomy has been performed, so why not do it properly the first time and avoid such a complication. Dr. Cutler has added to the accumulating evidence indicating the effectiveness of radiation therapy in early lesions of the intrinsic larynx. The results, however, are not much better than those for laryngofissure. I should like to add a word of caution: In some of these cases the decision of employing irradiation should be considered, especially when it is being used for young persons. Dr. Cutler, too, has demonstrated that with concentration therapy one can get results just as good as those obtained by Coutard's method. I think it is just another way of doing the same thing.

Dr. Ralph Phillips, New York: I do not need any convincing that radiotherapy is the treatment of choice for cancer of the larynx, but for those who still prefer surgical treatment I should like Dr. Cutler to say whether there is any selection in this consecutive series of 157 patients, that is, how many patients were seen but considered unsuitable for treatment. The recent trend toward more heroic surgical intervention and, perhaps I had better whisper, more mutilating surgical procedures, has been made possible by the chemotherapeutic control of infection and by better understanding of nutritional requirements. I should like Dr. Cutler to tell about the preparation of his patients for radical radiotherapy, as I think one important reason for its poor results in extrinsic cancer of the larynx is that patients have to be treated mostly as outpatients. I suggest that we banish the term radioresistant, for in general it either cloaks radiotherapy which was ill conceived, badly planned and poorly executed or it means that the patient did not have the benefit of that inpatient care which the patient undergoing surgical treatment gets automatically. The most important fact in this paper is that in those intrinsic cancers which have spread to either end of the cord and beyond, for which only total laryngectomy can be offered, the results of radiotherapy are as good as those of this drastic procedure. In "Nelson Loose-Leaf Living Surgery" radiotherapy is condemned with the statement that "every possible variation in treatment factors was used." Such a claim is either nonsense or ignorance, for only now—thanks largely to the work of Regaud, Harmer, Quick, Coutard, Cade, Baclesse and Cutler—are we beginning to have some idea of the importance of factors such as dose-time variations with field size and tumor characters, quality of radiation, total dose and over-all time. Over the last thirty years, it has been the development of radiotherapy, with its promise of cure without loss of function, that has brought patients to the hospital in earlier stages of cancer. The trend back to surgery in this country is due to the relegation of radiotherapy to an obscure corner of the diagnostic department or as a mere technical adjunct of the department of surgery. If this trend continues, I fear that the campaign to get patients for earlier diagnosis will fail.

Dr. Theodore P. Eberhard, Philadelphia: Dr. Cutler's paper is full of meat. There is ample space for approbation and for criticism. For the last fifteen years I have been listening to and reading papers by surgeons and radiotherapeutists on the treatment of carcinoma of the lungs. The argument is just as open and the antagonisms on the two sides just as violent today as they were fifteen years ago. The reason for this is that there are no criteria set up for reporting cases. Everybody reports cases according to his own classification, with the result that no one seems to know what anyone else is talking about. Even this afternoon we hear the term "operability," a term that nobody knows the meaning of except the man who uses it. I want to put in a plea that this section undertake a standard classification procedure similar to what was done a good many years ago by the Cervix Cancer Committee, whereby surgeons and radiotherapeutists can classify the cases according to the same standards. When that is done, then we can have comparative results. After all, it is not enough to prove that one can do a thing. One has to prove that that is the best way of doing it. Then someone else with a large series can undertake the sort of exhaustive analysis that has been done for carcinoma of the breast, and I feel sure that then we will set up the same type of criteria that have been established by Hagensen and Stout and Gordan Richards for carci-

30. Windeyer, B. W.: Intrinsic Cancer of the Larynx: Review of a Series of Cases, Proc. Roy. Soc. Med. 40: 522-524, 1947.

31. If the 8 "indeterminate" cases are counted as lost from cancer, the curability is 36 per cent.

noma of the breast, demonstrating conclusively what types of cases are really suitable for either surgical treatment or irradiation.

DR. MAURICE LENZ, New York: I believe that laryngologists are gradually accepting roentgen therapy as an equal of surgery in certain varieties of laryngeal cancer. Dr. Cunning, who has charge of laryngologic cancer surgery at the Manhattan Eye, Ear and Throat Hospital, speaking at the Laryngology Section of this meeting, reported the clinical arrest of early cancers of the larynx in 18 of 19 patients; these patients had been treated solely by roentgen therapy. Dr. Kernan, formerly in charge of the Laryngologic Service of the Presbyterian Hospital, with whom I was associated in the follow-up clinic at the Presbyterian Hospital for sixteen years, preferred roentgen therapy to laryngofissure in these cases. Good results, however, cannot be expected unless the positioning of the patient is accurate and the treatment is conducted by an experienced radiotherapeutist. Haphazard treatment by a hurried novice is likely to result in failure, even if the written record of the therapy appears satisfactory. Roentgen therapy of curable laryngeal cancer should not be entrusted to the independent judgment of inexperienced radiologic interns or residents and never be assigned routinely to an x-ray technician. Dr. Cutler is to be congratulated on the excellency of his results.

DR. MAX CUTLER, Chicago: I agree with Dr. Blady that the term "operability" has to be used with caution. By an operable lesion I mean one in which there is a reasonable probability that all the cancerous tissue can be removed. Dr. Phillips asked whether there has been a selection of cases. There has been selection in that a number of patients were treated surgically; however, there has been no selection in that the 157 cases reported are consecutive and represent all the patients treated by radiotherapy during the specified period. Regarding the preparation of patients treated by irradiation, we believe that patients suffering from early laryngeal cancer require little or no preparation. Patients with advanced lesions receive the usual supportive measures. The antibiotics have been used freely in combating secondary infection. Regarding the comparative value of concentration radiotherapy, I am of the opinion that it has a special value in cases of more radioresistant lesions. I was glad to hear Dr. Lenz say that the surgeons are developing more confidence in the radiotherapy of laryngeal cancer. I find this especially true in England, where for many years there has been a close and friendly working relationship between the otolaryngologists and the radiotherapeutists. Two recent publications by leading surgeons from London agree with the essential conclusion drawn by the writer, namely, that cancer of the larynx too advanced for laryngofissure for which the only surgical alternative is total laryngectomy is best treated by radiotherapy, provided the cords are not completely fixed.

Probably 3½ Minutes is the Time Limit.—We still average 2 cases of cardiac arrest each year. The total now is 15. All hearts have been revived. Seven patients survived the complication and 1 patient appeared to recover but died on the second postoperative day of a coronary occlusion. Our survival rate at present is 46 per cent. Cardiac arrest is an uncommon complication of a surgical operation. It is, however, a recognizable one, but requires acute awareness at all times by surgeon and anesthetist. The heart can be started again in practically all cases that are true cardiac arrests, but probably 3½ minutes is the time limit available to restore heart action, and restorations beyond that time limit leave patients with irreparable cerebral damage. Only organized teamwork, planned procedures and readily available instruments and drugs make it possible to accomplish what must be done in 3½ minutes to retain the patient's mentality. These cases will continue to occur. We must look on every patient who does have cardiac arrest as one who can literally and dramatically have his or her life saved if we can drill and train our operating room staffs and ourselves to do it.—Frank H. Lahey and Edwin R. Ruzicka, Experiences with Cardiac Arrest, *Surgery, Gynecology and Obstetrics*, January 1950.

THYMECTOMY IN THE TREATMENT OF MYASTHENIA GRAVIS

Results in Seventy-Two Cases Compared with One Hundred and Forty-Two Control Cases

L. M. EATON, M.D.
and
O. THERON CLAGETT, M.D.
Rochester, Minn.

In 1941, stimulated by the reports of Blalock, Mason, Morgan and Riven[1] and of Campbell, Fradkin and Lipetz,[2] we undertook a study to appraise the value of thymectomy in the treatment of myasthenia gravis. Although we discussed this work in previous publications,[3] we refrained from drawing conclusions as to the value of thymectomy, believing that our cases were too few in number and that the period of observation was not of sufficient duration. At present we believe these objections no longer exist, and we wish to report our results as briefly as clarity permits. Greater details

TABLE 1.—*Myasthenia Gravis: General Survey of Cases*

	Cases				
	Operative		Nonoperative or Control		
Year	Tumor	No Tumor	Tumor	No Tumor	Total
1941	1	0	1	2	4
1942	2	0	1	32	37
1943	6	1	3	31	41
1944	4	8	2	21	35
1945	0	8	3	9	20
1946	5	16	2	19	42
1947	5	17	1	15	38
Total	23	50	13	129	217
	73*		142		217

* Follow-up data are not available in 3 cases; 1 in which a tumor was present and 2 in which no tumor was found. In tables 2 to 8 these 3 cases have been excluded.

of this study appear in a report by Eaton, Clagett, Good and McDonald,[3b] based on 32 cases of myasthenia gravis, which appeared in May 1949.

Remissions in myasthenia gravis may occur with or without thymectomy. Therefore improvement that follows thymectomy is not necessarily due to removal of the thymus. Consequently the value of thymectomy in the treatment of myasthenia gravis may be determined best by comparing the course of the disease in a large group of patients treated surgically with the course of the disease in a large group treated nonsurgically.

Since the beginning of our study in 1941 more than 300 patients with myasthenia gravis have been studied; of these, 86 underwent surgical treatment in an effort to remove the thymus, a thymic tumor or both. In this report we are including data on only those patients

From the Mayo Clinic, Section on Neurology and Psychiatry (Dr. Eaton) and Division of Surgery (Dr. Clagett).

1. Blalock, A.; Mason, M. F.; Morgan, H. J., and Riven, S. S.: Myasthenia Gravis and Tumors of Thymic Region: Report of a Case in Which Tumor Was Removed, Ann. Surg. **110**: 544-560 (Oct.) 1939.

2. Campbell, E.; Fradkin, N., and Lipetz, B.: Myasthenia Gravis Treated by Removal of Thymic Tumor: Report of Two Cases, Tr. Am. Neurol. A. pp. 14-15, 1941.

3. (a) Eaton, L. M.: Myasthenia Gravis: Its Treatment and Relation to the Thymus, Proc. Staff Meet., Mayo Clin. **17**: 81-87 (Feb. 11) 1942. Clagett, O. T., and Eaton, L. M.: Thymic Tumors in Myasthenia Gravis, S. Clin. North America **23**: 1074-1082 (Aug.) 1943; Surgical Treatment of Myasthenia Gravis, J. Thoracic Surg. **16**: 62-80 (Feb.) 1947. (b) Eaton, L. M.; Clagett, O. T.; Good, C. A., and McDonald, J. R.: Thymectomy in Treatment of Myasthenia Gravis: Report Based on Thirty-Two Cases, Arch. Neurol. & Psychiat. **61**: 467-498 (May) 1949.

who were examined or operated on prior to Jan. 1, 1948, and on whom satisfactory follow-up data were available. The groups thus limited are comprised of 72 surgical and 142 nonsurgical patients. However, 75 patients underwent operation during the period under consideration. Data on all 75 surgical patients are given

TABLE 2.—*Results of Removal of Tumors in 24 Cases**

		Condition of Patient					
					Improved		
Year	Total	Patient Died	Worse	Essentially Unchanged	Moderate	Considerable	Complete Remission
1941.....	1	..	..	..	..	1	..
1942.....	3	..	..	2	..	1	..
1943.....	6	1†	..	..	..	1	..
1944.....	4	..	..	1	..	2	1
1945.....	0	..	..	..	..	..	..
1946.....	5	1†	..	1	1	..	..
1947.....	5	1	1	1	1	1	..
Total.....	24	2††	1	5	2	6	1
Percentage	100.0	37.5	4.2	20.8	8.3	25.0	4.2

* Condition of 1 additional patient unknown.
† Each represents 1 surgical death.

in table 1 and in figures 1 and 2 and wherever reference to follow-up data is not necessary.

A general survey of the cases is given in table 1. The results of this study are presented in tables 2, 3 and 4 and summarized in table 5. The condition of the patient listed in tables 2 to 8 refers to the condition in January 1949, as compared with the condition at the time the patient became part of this study, one to eight years earlier. It is a comparison of the condition of the patient at the time of his first visit, or, in the surgical cases, at the time of operation, while the patient was on the best medical regimen possible, with the condition of the patient in January 1949. It is not a comparison of the condition of the patient before and after the administration of neostigmine.

TABLE 3.—*Results of Surgical Treatment in 48 Cases* in Which No Tumor Was Found*

		Condition of Patient					
					Improved		
Year	Total	Patient Died	Worse	Essentially Unchanged	Moderate	Considerable	Complete Remission
1941.....	0	..	..	..	..	..	..
1942.....	0	..	..	..	..	..	..
1943.....	1	..	..	..	..	1	..
1944.....	8	2†	..	1	3	2	..
1945.....	7	1	..	2	4	..	..
1946.....	15	2††	..	4	3	4	2
1947.....	17	..	1	8	3	3	2
Total.....	48	5††	1	15	13	10	4
Percentage	100.0	10.4	2.1	31.2	27.1	20.8	8.3

* Condition of 2 additional patients unknown.
† Each represents 1 surgical death.

First, for the unselected cases it was found that the percentage of patients in the surgical group who had complete remissions was approximately equal to that in the control group, but the percentage of patients in the surgical group who were considerably and moderately improved was twice as high as that in the control group (table 5).

Careful study of the two groups of unselected cases as to age, sex, duration (figs. 1 and 2) of the disease and duration of treatment with neostigmine disclosed few differences which might influence the results. Differences in severity are not shown in these figures and might have a significant influence on results. For instance, some patients were too ill or too old for major surgical procedures to be recommended. The fact that patients of this type often died within a short time may have accounted for the higher percentage of deaths among the nonsurgical patients. On the other hand, the inclusion of many cases of mild myasthenia gravis in the control group may have tended to balance the effect, from a statistical standpoint, of the group of patients that were severely ill.

The inclusion, among the controls, of one particular type of patient may have produced misleading statistical results; that is, the type of patient who has had myasthenia gravis for a long time and who with good medical management lives relatively normally, the course of his disease being singularly free of variations in intensity. This type of patient was seldom interested in radical treatment and consequently is found in greater numbers among the controls. Furthermore, his condition tended to remain unchanged during the follow-up period of observation. For this reason the percentage of patients whose condition was classified as essentially unchanged may have been greater in the control group than in the surgical groups, and as a consequence the percentage of those in the control group showing considerable improvement may have been lower than that in the surgical group.

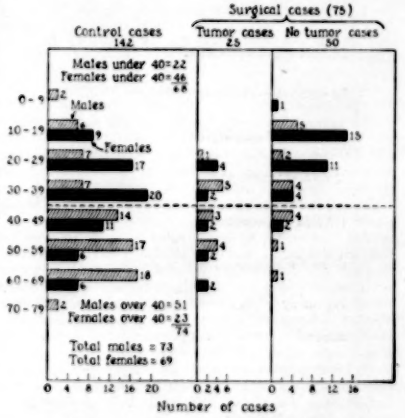

Fig. 1.—Age at onset of myasthenia gravis.

In any event, because of these possible pitfalls, it seemed wise to select another group of controls (table 6). This was done. The selection depended on similarity of age and of the duration, severity and progress of the myasthenic symptoms to those of the patients in the surgical group. Actually, in the majority of instances, the patients in the selected control group had been given the opportunity of having thymectomy performed and had declined it.

In order that the comparison of the selected control group with the surgical group might be as fair as possible to the surgical group it seemed advisable to establish a new surgical group. Thus a surgical group of 62 cases was selected (table 7) by excluding, from the surgical group of 72 patients, 6 patients who failed to survive surgical treatment long enough for the effect of the thymectomy to be determined, 3 patients on whom removal of a specimen for biopsy was the only surgical procedure and 1 patient on whom only an insignificant amount of thymic tissue could be found at operation. In short, in the selected surgical group are included only those patients who should have improved if thymectomy is of therapeutic importance.

A comparison of the results in the 62 selected surgical cases with those in the 56 selected control cases (tables 6 and 7) indicates that, provided the operation is successful, the chance of a truly gratifying surgical result is 35.5 per cent as against a 28.5 per cent chance that a similar result will occur without operation. The percentage difference is not statistically significant in groups of cases of this size.

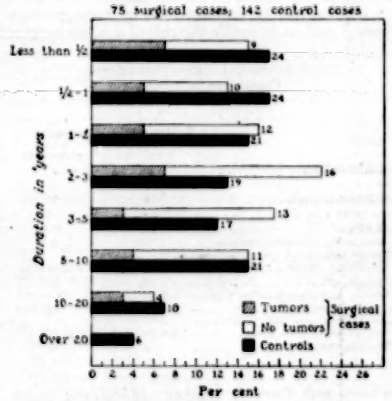

Fig. 2.—Duration of myasthenia gravis at operation or first visit.

Thus, we and our colleagues have been forced to the conclusion that there is in this study no indication that thymectomy influences beneficially the course of myasthenia gravis. This opinion is reached in spite of the fact that in several cases recovery following thymectomy has been dramatic. If operation for removal of the thymus had been performed in certain of our control cases, the results would have seemed equally spectacular.

This conclusion leaves us less puzzled than we were at one time by the lack of correlation between the amount of thymic tissue removed and the results, or by the fact that a comparison of 20 cases in which the surgical results were apparently highly successful with 20 cases in which surgical treatment completely failed (table 8) did not show any significant difference in the two groups which might aid in proper selection of patients for thymectomy.

We believe particular attention should be called to the fact that we found no remarkable degree of correlation between the result of operation and duration of administration of neostigmine before operation. The period of preoperative administration of neostigmine for the 20 surgical patients who had the best results averaged six months as compared with fourteen months for the 20 surgical patients who had the worst results.

Let us be more specific. One of the best results occurred in a patient who had received a great deal of neostigmine preoperatively.

TABLE 4.—*Control Group: Results in 142 Cases of Myasthenia Gravis*

		Condition of Patient					
					Improved		
Year	Total	Patient Died	Worse	Essentially Unchanged	Moderate	Considerable	Complete Remission
1941	3	2	0	1	0	0	0
1942	33	4	0	19	5	2	3
1943	34	10	*3	12	1	4	4
1944	25	8	1	8	3	1	2
1945	12	2	3	3	2	1	1
1946	21	4	1	9	3	3	1
1947	16	2	1	9	1	3	0
Total	142	32	9	61	15	14	11
Percentage	100.0	22.5	6.3	43.0	10.6	9.9	7.7

This patient, a woman, was 21 years of age at the time of operation on June 22, 1946 and at that time had had myasthenia gravis for almost four years. The myasthenic symptoms had increased gradually in severity without the occurrence of any well-defined remission. The administration of neostigmine had been begun seventeen months before operation. During the months preceding surgery, the patient had taken each day an average of twenty-eight to thirty tablets of neostigmine bromide, each containing 15 mg. By taking this amount the patient was able to accomplish approximately three-fourths the normal amount of college work and was forced largely to forego social activities. On one occasion she had taken forty tablets (600 mg.) within one period of six hours.

After removal of the thymus, the patient rested for three months before accepting a position as a teacher. By the end of five months she was able to discontinue all medication, work vigorously and carry on normally strenuous social activities. Although the patient considered herself to be entirely recovered latent myasthenia gravis was found to be present on reexamination; this was indicated by increased sensitivity on intravenous injection of curare. This patient underwent a satisfactory remission in spite of having received considerable neostigmine preoperatively.

TABLE 5.—*Myasthenia Gravis: Comparison of Results After Thymectomy and Medical Treatment*

	Results, Percentage			
	Unselected Cases		Selected Cases	
Condition of Patient	Surgical (72*)	Control (142)	Surgical (62)	Control (56)
Patient died	19.4†	22.5	8.1	5.4
Worse	2.8	6.3	3.2	12.5
Essentially unchanged	27.8	43.0	29.0	39.2
Moderately improved	20.8	10.6	24.2	14.3
Considerably improved	22.2	9.9	27.4	19.7
Complete remission	6.9	7.7	8.1	8.9

* The 3 surgical patients whose condition could not be ascertained in January 1949 have been excluded.
† Only 6 of the deaths (8.3 per cent) were the results of surgical treatment.

One of the poorest results occurred in a patient who had not taken a significant amount of neostigmine before operation.

The patient, another woman, was 60 years of age. She underwent removal of a thymic tumor on Aug. 16, 1947. At that time the myasthenic symptoms were minimal and neostigmine had not been administered except for 1 mg. of neostigmine methylsulfate as a therapeutic test. After operation the myasthenic symptoms gradually increased in intensity, so that at the end of three months she was taking three tablets (45 mg.) of neostigmine bromide daily. By December 1948, sixteen months after operation, the myasthenia gravis was of such severity that the patient was unable to work and was taking seventeen tablets (255 mg.) of neostigmine bromide daily plus ephedrine sulfate.

Table 6.—*Course in 56 Selected Control Cases*

		Condition of Patient					
					Improved		
Year	Total	Patient Died	Worse	Essentially Unchanged	Moderate	Considerable	Complete Remission
1941	1	..	..	1	..	..	..
1942	10	..	..	6	1	2	1
1943	18	2	3	5	1	4	3
1944	7	1	..	4	1	..	1
1945	8	..	2	3	2	1	..
1946	8	..	1	2	3	2	..
1947	4	..	1	1	..	2	..
Total	56	3	7	22	8	11	5
Percentage	100.0	5.4	12.5	39.2	14.3	19.7	8.9

Thus this patient is an example of the relentless increase in severity of myasthenia gravis following thymectomy in spite of the fact that treatment with neostigmine had been avoided preoperatively.

Recently we have had the opportunity of studying a case remarkable for the lack of correlation between the severity of the myasthenia gravis and the growth of a thymic tumor.

The patient, a man, was 42 years of age in April 1945, when symptoms of myasthenia gravis, which included weakness of arms and jaws and nasal regurgitation, developed. Within a few weeks the illness had progressed to a point that the patient could not lift his head from the pillow, arise from a sitting position without great difficulty, button clothes or walk well. For a period of six months he took approximately eighteen tablets of neostigmine bromide per day and then gradually discontinued this in spite of a persistence of myasthenic symptoms. Roentgenologic examination of the thorax disclosed mediastinal widening, which was interpreted as due to a thymic tumor. By June 1947, within somewhat more than two years, the patient had improved sufficiently to return to work as a carpenter. By March 1949, when he first consulted the physicians of the Mayo Clinic, he considered himself completely well, although careful examination showed minimal findings of myasthenia gravis. Roentgenograms of the thorax showed that the anterior mediastinal tumor had increased greatly in size and implanted itself on the pleura at a distance. In this instance the symptoms of myasthenia gravis had abated spontaneously to a remarkable degree while the tumor enlarged and metastasized within the pleural cavity.

Table 7.—*Results After Thymectomy: 62 Selected Surgical Cases*

		Condition of Patient					
					Improved		
Year	Total	Patient Died	Worse	Essentially Unchanged	Moderate	Considerable	Complete Remission
1941	1	..	..	..	..	1	..
1942	3	..	..	2	..	1	..
1943	4	2	..	..	..	2	..
1944	9	1	..	..	3	4	1
1945	7	1	..	2	4	..	..
1946	16	..	..	5	4	5	2
1947	22	1	2	9	4	4	2
Total	62	5	2	18	15	17	5
Percentage	100.0	8.1	3.2	29.0	24.2	27.4	8.1

At present, we are not recommending thymectomy unless there is roentgenologic evidence of thymic tumor. Our reasons for recommending removal of thymic tumors are obvious from a study of table 9. Of 30 thymic tumors verified surgically 13.3 per cent were inoperable because they had invaded vessels, such as the superior vena cava, that could not be sacrificed, or had implanted themselves at a distance on the parietal or visceral pleura. Another 26.7 per cent had invaded surrounding structures such as the pleura, lung or pericardium but could be removed in spite of it. Evidence of invasiveness has been present in approximately a third of the 48 thymic tumors we have studied. Therefore, if the condition of the patient in whom a thymic tumor can be demonstrated by roentgenologic methods is such as to justify the risk of a major surgical procedure, and there is neither clinical nor roentgenologic evidence that the tumor is inoperable, thymectomy is advised.

Table 8.—*Results After Thymectomy: Comparison of Cases*

	Marked Improvement, 20 Patients	No Improvement, 20 Patients
Males	9	8
Females	11	12
Thymic tumor	6	6
Age, yr., range	21-55	8-60
Average age, yr.	32.6	32.4
Remissions before operation, cases	6	6
Duration of myasthenia gravis at time of operation: range	2 mo. to 9 yr.	2 mo. to 15 yr.
Average, yr.	2⅝	4
Average after eliminating 3 cases of extreme deviation, yr.	1⅝	2½
Duration of treatment with neostigmine at time of operation: range	1 mo. to 1½ yr.	0 to 5½ yr.
Average, mo.	6	14

Only 7 postoperative deaths have occurred among our 86 patients operated on for myasthenia gravis to date. With the experience gained in these cases, the mortality rate (8 per cent) should be even lower in the future. The operation now is advised to remove a potentially dangerous tumor and not because of anticipated improvement in the myasthenia gravis itself.

We do not recommend exploration for fear that a thymic tumor may otherwise be overlooked. Our roentgenologists, now using the methods recommended by Good,[4] have allowed only one thymic tumor to elude them in 96 cases, 86 in which surgical exploration was performed and 10 in which the accuracy of their opinion was checked by necropsy. To attain this degree of accuracy Good and his colleagues routinely have performed roentgenoscopy and made roentgenograms with the patient in the posteroanterior position. Almost always roentgenograms are made also with the patient in the lateral or oblique positions.

4. Good, C. A.: Roentgenologic Findings in Myasthenia Gravis Associated with Thymic Tumor, Am. J. Roentgenol. 57: 305-312 (March) 1947.

In table 10 the results we have obtained are compared with the results in the largest series of cases reported to date, that is, those of Blalock,[5] Harvey,[6] Viets [7] and Keynes and associates.[8]

SUMMARY AND CONCLUSIONS

Comparison of 72 cases of myasthenia gravis in which surgical treatment was employed with 142 control cases in which nonsurgical treatment was used shows that the favorable results occur more frequently among the surgical cases.

Further analysis of the groups suggests that factors having to do with selection of cases for surgery accounted for the better results among the surgical cases. Thus, the study fails to support the thesis that thymectomy influences beneficially the course of myasthenia gravis.

TABLE 9.—*Malignant Characteristics of 48 Thymic Tumors*

		Invasive				
		Inoperable		Operable		
	Total	Number	Percentage *	Number	Percentage *	Total Percentage *
Verified surgically	20	4	13.3	8	26.7	40.0
Verified at necropsy	7	1	....	0	....	....
Unverified (demonstrable roentgenologically)	11	2	....	?	....	....
Total	48	7	14.6	8	16.7	31.3

* Percentage based on totals in line.

TABLE 10.—*Comparison of Results of Thymectomy in Various Series*

	Blalock [5] (1944) and Harvey [6] (1948)	Viets [7] (1945)	Keynes [8a] (1946)	Eaton and Clagett [8b] (1950)
Surgical cases	32	15	63	75
Thymoma	7	4	7	23
Surgical deaths	3	4	9	6
Results				
Patients dead	10	4	15	14
No significant improvement	2	1	12	22
Unequivocal improvement	18	5	35	31
Complete remission	2	2	14	5
Too recent to evaluate	..	3	9	0
Condition unknown	..	..	..	3

* This article.

At present thymectomy in the treatment of myasthenia gravis is recommended by us because of the potentially malignant character of the thymomas and not because of anticipated improvement in the myasthenia gravis. Thymectomy is seldom recommended except when the following conditions prevail: 1. A thymic tumor can be demonstrated roentgenologically. 2. The condition of the patient is such that the risk of operation is not considered excessive. 3. There is no roentgenologic or clinical evidence of inoperability of the tumor.

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PHYSICAL MEDICINE AND REHABILITATION IN THE PREVENTION OF CHRONIC INVALIDISM

F. A. HELLEBRANDT, M.D.
Richmond, Va.

The most important causes of chronic invalidism are degenerative changes associated with aging and the destructive lesions of chronic disease. Certain acute illnesses, accidents and injuries also leave damaged tissues and functional abnormalities which lead to enduring physical disabilities. That the specific technics of rehabilitation and retraining can be applied to reduce such physical handicaps is now being demonstrated in treatment centers scattered throughout the country.[1] I propose herein not to review these trends but rather to discuss some of the mechanisms which explain why dynamic activity appears to be the keynote to rehabilitation and how physical medicine furthers its objectives.

The clinical literature of the present decade has focused considerable attention on the evils of bed rest [2] and the restorative effects of early ambulation.[3] The work of Blodgett,[4] recently editorialized on in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,[5] now suggests that early ambulation following surgery may be less prophylactic than at first supposed. However, this study did show that wound healing was not affected adversely by early rising and that the return of the patient to normal living was expedited.

Curtailment of normal activity, necessary during the acute phases of treatment, is responsible for many of the signs and symptoms which characterize the period of impaired fitness that frequently follows injury or disease. Bed rest leads to the deconditioning of the body as a whole.[6] Thus, the functional status of organ systems not directly involved in the lesions being treated may deteriorate so significantly as to induce a chronic invalidism which will delay resumption of activity for a considerable interval beyond that required to return diseased or injured tissues to normal. Although nature unaided may eventually restore functional capacity to previous levels characteristic of the individual patient, this does not necessarily follow, or the restoration is attained at a rate below optimal. It is in this hitherto neglected area of preventive treatment and after-treatment that physical medicine and rehabilitation are increasingly significant.

Perhaps the most important casual factor conducive to prolongation of chronic invalidism is the dysphoria

From the Baruch Center of Physical Medicine, Medical College of Virginia.

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with which ill health is associated in contrast with the buoyancy and euphoria of the physically fit person.[7] Few would deny that psychogenic factors frequently occupy a dominant position in the perpetuation of ill health. However, pain and discomfort may be the prepotent cause of the secondarily disabling dysphoria. Many of the procedures of classic physical medicine alleviate these symptoms. In addition, the will to resume normal activity is greatly enhanced by forms of therapy which reduce muscle spasm, mobilize joints, extend the limits of work capacity and stimulate interest. Physical activity of sufficient severity to elicit the adaptive responses which lead to improved fitness not only is restorative but gives rise to an increasing sense of well-being, which is in itself one of the most potent devices for the prevention of chronic invalidism. Once the will to recover has been aroused, it is comparatively easy to inure the cooperative patient to the discomforts associated with the degrees of physical effort known to be essential if functional capacity is to be extended. It is a fundamental physiologic principle that organ systems pushed to levels of activity beyond those which can be met easily are the ones which respond by increased ability to discharge their specific functions.[8] One of the distinguishing features of modern rehabilitation is its emphasis on systematic progression through increasing degrees of stress until optimal functional capacity has been attained. The dynamogenic effect of such goal setting has been demonstrated especially well in the rehabilitation of severely disabled persons.

Much evidence has accumulated to indicate that severe injury or disease, especially that involving the skeletal system, brings on wastage of protein which cannot be wholly prevented by dietary means or the parenteral administration of hydrolysates.[9] When finally reversed at some as yet undetermined point in convalescence, full restoration of nitrogen lost is attained only after the lapse of considerable time in spite of high protein feeding. How much abnormal protein catabolism contributes to the debility following severe trauma has not been determined. It would seem that full rehabilitation is impossible as long as tissue lost in the catabolic phase of invalidism cannot be replaced adequately by synthesis of new protein. Cuthbertson[10] found that massage and passive movement had an immediately salutary effect on the negative nitrogen balance. This may explain why restoration of function appears to be hastened by bed exercise programs which maintain physical fitness in the interval between necessary immobilization and the resumption of generalized activity. The whole problem of realimentation and repletion of protein, and its relation to physical rehabilitation, is a fundamental one which has received much less attention than it deserves. Recent evidence indicates that exercise coupled with high protein feeding may play a crucial role in the general physical restoration on which rehabilitation depends and without which total rehabilitation is impossible.

The key to normal tissue metabolism during and following recovery from disease or injury may be circulatory. It is highly probable that a large share of the total benefit of bed exercise programs and early ambulation is due to their influence on cardiovascular and respiratory function. Cardiac muscle behaves like skeletal muscle when subjected to increased load; contractile power and cardiac reserve are augmented. Conversely, prolonged inactivity induces opposite changes which secondarily affect the response of the convalescent person to exercise.[11] Palpitation, tachycardia, dyspnea and vertigo are among the commonest discomforts of chronic invalidism. These symptoms are attributable in part to the decreased blood volume, low venous pressure and impaired vasomotor function associated with bed rest.[12] Indeed, the tendency toward the development of gravity shock or orthostatic circulatory insufficiency is one of the transitory complications of early rehabilitation.[13] Simonson and Enzer[14] have also pointed out that circulatory collapse is most liable to occur in the convalescent person after exercise, when cessation of muscular contraction reduces venous return but the capillary bed within the muscles and skin is still dilated. The demand placed on the circulatory system immediately after exercise may be more critical than that elicited by physical activity.

The integrated action of the machinery of the living body is insured by the automatic operation of multiple coordinating mechanisms. Recent work indicates that the proprioceptive impulses emanating from the muscles, tendons and joints utilized in dynamic rehabilitation play a greater role in integrating the cardiovascular-respiratory responses to exercise than was previously appreciated.[15] Since passive mobilization and electrical stimulation of muscle elicit the same reflexes, these physical medicine procedures can be utilized to augment heart rate, circulation time and pulmonary minute volume before ambulation and volitional activity are possible. Recent work also indicates that the rise in body temperature which accompanies muscular contraction is a useful, adaptive response to exercise rather than a manifestation of imbalance between heat production and heat loss. Indeed, Asmussen and his associ-

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ates [16] have shown that preheating with high frequency currents or hydrotherapy augments the functional capacity of skeletal muscle in man. This should be remembered whenever the restoration of strength is a major objective of the rehabilitation program.

Deciding when measures aimed at preventing chronic invalidism can be introduced with safety and the speed with which the stress imposed by activity can be augmented are key questions as yet answerable only in terms of clinical judgment. Deconditioning, chronic invalidism and reconditioning are all variants of that poorly defined and illusive quality known as physical fitness. A truly scientific attack on many problems of chronic invalidism and its prevention is linked inextricably with the development of objective methods of disability evaluation, of which only performance testing has received much attention. Until quantitative disability evaluation is a part of the routine physical assessment of the sick and disabled, specificity in the planning of rehabilitation programs is impossible and the efficacy of various forms of treatment cannot be determined. There is reason to believe that a judicious use of the classic procedures of physical medicine in combination with the newer technics of rehabilitation can accomplish more than either alone in the prevention and cure of chronic invalidism.

ABSTRACT OF DISCUSSION

QUESTION: What does the spa have for the treatment of chronic invalidism?

DR. F. A. HELLEBRANDT, Richmond, Va.: The spa is really no more or less than a rehabilitation center. Attention in rehabilitation at present seems to be focused largely on the restoration of the orthopedically disabled person. The spa is ideal in many respects for the rehabilitation of the patient with chronic medical conditions. The unique feature of the spa is the advantage of life in a healthful environment and the advantages of the so-called spa regimen, such as the ability to retreat under medical supervision where one has freedom from stress, opportunities for rest, relaxation, dietary control, restorative diversional activities and graded outdoor exercise.

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ANTIHISTAMINIC DRUGS

Comparative Activity in Man as Measured by Histamine Iontophoresis

THOMAS H. STERNBERG, M.D.
DANIEL J. PERRY, M.D.
and
PAUL LeVAN, M.D.
Los Angeles

Since 1933 a number of drugs capable of preventing histamine reactions in animals have been reported. The first of these, 929F (2-thymoloxytriethylamine), was found by Fourneau and Bovet [1] to be capable of inhibiting or counteracting the action of histamine in guinea pigs. In 1937 Staub and Bovet [2] confirmed these observations. In 1939 Staub [3] reported a compound with an ethylenediamine radical, 1571F (N,N,N'-triethylethylenediamine), with similar qualities. These drugs, while exhibiting a decided antihistaminic effect, were toxic and could not be studied in man. In 1942 Halpern [4] investigated a large number of antihistaminic drugs and found one, 2339 R. P., which could be used in man. This drug, N-phenyl-N-benzyl-N',N'-dimethylethylene diamine, was introduced in France for clinical use under the trade name "antergan." In 1944 a less toxic antihistaminic drug, pyranisamine maleate, known as 2786 R. P. (neo-antergan®), was reported by Bovet, Horclois and Walthert.[5] In 1945 two other antihistaminic drugs were introduced in this country, tripelennamine (pyribenzamine®) hydrochloride by Mayer, Huttrer and Scholz [6] and diphenhydramine (benadryl®) hydrochloride by Loew, Kaiser and Moore.[7] Since 1945, a large number of so-called antihistaminic drugs have been marketed commercially. All these drugs have been given distinctive trade names, and their introduction has been accompanied by animal and human experimental data suggesting that each is preferable to the others. At the time of writing, thirteen such preparations are being "detailed," and there are undoubtedly more to come.

Since the physician must choose which particular antihistaminic drug or drugs he will employ, methods for comparing their effectiveness assume considerable importance. Laboratory studies in animals which determine the amount of protection against intracardially injected histamine and histamine-induced

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From the Division of Dermatology, Department of Medicine, University of California at Los Angeles and the Wadsworth General Hospital, Veterans Administration Center, Los Angeles.

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anaphylactic shock, bronchial spasm or smooth muscle spasm of the ileum have afforded considerable information. More recently Haley and Harris [8] have demonstrated the effect of antihistaminic compounds on the capillary bed of the mesoappendix of rats. Unfortunately, these methods cannot be employed in man, and the results obtained in animals do not necessarily apply to their clinical use.

In man, the effect of these drugs on gastric acidity following the administration of histamine has been studied and found to be an unreliable method of measuring antihistaminic activity.[9] Histamine wheals induced by intradermal injections or scratch tests in pollen-sensitive persons have also been utilized but have been found unsatisfactory because of the difficulty in measuring the exact size of the wheals and erythema.[10]

In recent years there has appeared a veritable flood of clinical evaluations of the antihistaminic drugs. Many of these reports have beeen difficult to interpret because of a failure to employ adequate control measures. Undoubtedly, influences such as the psychic factors incident to treatment, the occurrence of spontaneous remissions and daily human emotional variations may result in a wide margin of error.

TABLE 1.—*The Histamine Base Content in Each of a Group of Serial Solutions*

Histamine Base Dilution	Quantity of Histamine Base (micrograms/cc. of Solution)
1/500,000	2.000
1/600,000	1.666
1/700,000	1.428
1/800,000	1.250
1/900,000	1.111
1/1,000,000	1.000
1/1,500,000	0.666
1/2,000,000	0.500
1/3,000,000	0.333
1/4,000,000	0.250
1/5,000,000	0.200
1/6,000,000	0.166
1/7,000,000	0.142
1/8,000,000	0.125
1/9,000,000	0.111
1/10,000,000	0.100

The problem of "too many drugs" has recently received the attention of the Council on Pharmacy and Chemistry in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.[11] This report points out the harmful effect of unnecessary duplication in drugs of a similar nature. In particular reference to the antihistaminic drugs, the report discloses that new drugs are being introduced so rapidly that it is "practically impossible to acquire the experience that is necessary to determine what advantages, if any, they possess over the older, similar agents." The Council suggests that the introduction of a new drug should be based on increased efficiency, fewer side actions and lower toxicity rather than commercial gain.

In order to bring some semblance of order to the problem of "too many antihistaminic agents," an objective method of measuring their activity in man is essential. In 1947 Cohen and his co-workers,[12] using histamine electrophoresis, showed that the histamine whealing threshold of the skin was altered by the administration of diphenhydramine hydrochloride. With some modifications of this method, Perry, Falk and Pillsbury [13] compared the antihistaminic effect of ephedrine, aminophylline, diphenhydramine hydrochloride, hydrillin (one part diphenhydramine hydrochloride and four parts aminophylline) and tripelennamine hydrochloride. The present study, utilizing the same method, deals with an evaluation of all the antihistaminic compounds commercially available at the time of writing.

MATERIALS AND METHODS

In the present experiments a standard 45 volt B battery connected in series to a rheostat and ammeter was used. The negative electrode consists of a metal conductor and a gauze-covered asbestos pad. The positive electrode is a 2 sq. cm. piece of copper. Histamine dilutions are freshly prepared each day for all experiments. One cubic centimeter ampules of histamine phosphate containing 1 mg. of active histamine are used for each series of dilutions. The diluent is a buffered neutral solution containing sodium biphosphate, sodium phosphate, sodium chloride and distilled water.[13]

Serial dilutions from 1 : 500,000 to 1 : 10,000,000 of histamine base per cubic centimeter of solution are prepared for each experiment. Glass rods are used to mix each solution. Pieces of filter paper (2 sq. cm.) are saturated with the dilution to be tested, placed on the flexor surface of a forearm and covered by the positive electrode. A constant weight, equally suspended on each side of the forearm, is then placed on this electrode. A 2 milliampere current is then maintained for two minutes. After the iontophoretic transfer of histamine, the site is carefully observed for ten minutes. In this fashion the initial threshold level, representing the highest dilution producing diffuse follicular whealing at the site of the positive electrode, is determined for the subject. The threshold readings should be made in direct light, preferably sunlight. On a cloudy day the detection of the whealing reaction may be aided by the use of a 200 watt 120 volt Westinghouse P. S. 30 daylight electric lamp. With either light source, the rotation of the forearm so as to obtain oblique rays will facilitate the determination of the histamine threshold. The initial threshold is not an actual quantitative measure of the amount of histamine penetrating the skin but represents the concentration of histamine base per cubic centimeter of solution necessary to produce a diffuse whealing reaction. The antihistaminic drug being tested is administered orally after the initial threshold has been determined. Repeat threshold determinations are made one and two hours later, with the same technic. Controls consist of the buffered neutral solution identically tested in adjoining areas of the flexor surface of the forearm. Occasionally the control shows a few scattered follicular papules, but nothing comparable to histamine-induced whealing has been observed.

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Table 1 shows the histamine base content of the various dilutions used. Antihistaminic activity may be arbitrarily measured by converting the initial, one and two hour threshold readings to micrograms of histamine base per cubic centimeter of solution and subtracting the one or the two hour reading, whichever is the greater, from the initial reading. For example, in a given subject the initial threshold dilution is 1:5,000,000, or 0.20 micrograms of histamine base per cubic centimeter of solution. The two hour threshold is 1:2,000,000, or 0.50 micrograms. The difference, or 0.30 micrograms, represents the degree of antihistaminic activity of the drug tested.

In this experiment only one and two hour threshold determinations were made after the administration of the test drug. Readings taken after two hours were not considered necessary, since Perry and Hearin,[14] using the same technic of electrophoresis, found, as shown in figure 1, that the maximum antihistaminic activity is reached in two hours. It is also to be noted from this graph that the antihistaminic activity disappears four to five hours after administration of the test drug.

TABLE 2.—*Activity of Antihistaminic Compounds*

Drug	Dose (Mg.)	Histamine Base "Blocked" in 10 Patients (Average Micrograms)
Diphenhydramine (benadryl*) hydrochloride	50	.72
Tripelennamine (pyribenzamine*) hydrochloride	50	.70
Pyranisamine (neo-antergan*) maleate	50	.60
Hydryllin (diphenhydramine and aminophylline)	50	.60
Phenindamine (thephorin*) tartrate	50	.50
Diatrin*	50	.47
Prophenpyridamine (trimeton*)	50	.46
Doxylamine (decapryn*) succinate	50	.45
Chlorothen (tagathen*) citrate	50	.40
Methapyrilene (thenylene*) hydrochloride	100	.33
Methapyrilene (histadyl*) hydrochloride	50	.33
Thonzylamine (neohetramine*) hydrochloride	50	.322
Antazoline (antistin*) hydrochloride	100	.32
Control	Placebo	.60

* Registered trade name.

RESULTS

Thirteen commercially available antihistaminic drugs have been tested. Each drug was administered to 10 persons. Dextrose placebo controls were likewise given to 10 persons. The subjects were both white and Negro, men and women between 19 and 45 years of age. They were selected because of the suitability of their skin for testing. They received no oral medication for twenty-four hours prior to testing.

Table 2 indicates the antihistaminic activity of each of the compounds tested and compares the results with those of the placebo controls. In 9 of the 10 persons receiving a placebo there was no change in the threshold. In one subject there was a minor change from 1:8,000,000 to 1:7,000,000. As may be seen in table 2 the drugs tested are listed in the order of decreasing antihistaminic effect. It will be noted that diphenhydramine hydrochloride, tripelennamine hydrochloride, pyranisamine maleate and hydryllin show the greatest antihistaminic activity, while antazoline (antistin*) hydrochloride, thonzylamine (neohetramine*) hydrochloride and methapyrilene (histadyl* and thenelyne*) hydrochloride showed the least. Between these two groups were phenindamine (thephorin*) tartrate, diatrin* (N,N-dimethyl-N'-phenyl-N'-2 thienylmethyl-ethylene-diamine monohydrochloride), prophenpyridamine (trimeton*), doxylamine (decapryn*) succinate and chlorothen (tagathen*) citrate. Hydryllin contains one part diphenhydramine and four parts aminophylline. In a previous paper, Perry, Falk and Pillsbury[13] showed that aminophylline itself had little antihistaminic effect. Therefore, the activity of hydryllin is considered to be due to the diphenhydramine component. Pentryl was not tested, since it is a compound containing methapyrilene hydrochloride,

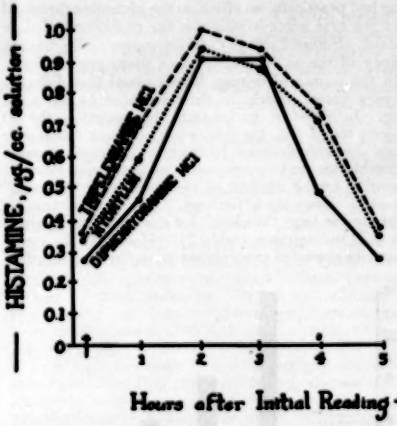


Fig. 1.—Duration of antihistaminic activity of three compounds, tripelennamine hydrochloride, hydryllin and diphenhydramine hydrochloride. (From Perry and Hearin.)

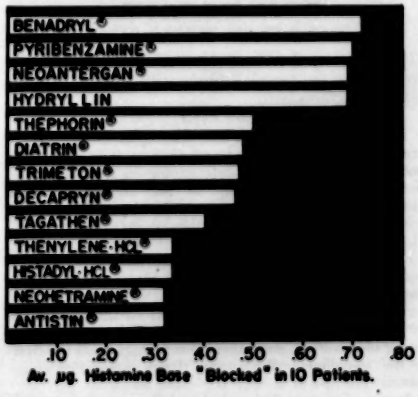


Fig. 2.—Comparative antihistaminic activity of all the drugs tested.

14. Perry, D. J., and Hearin, D. T.: Experimental Determination in Human Subjects of the Duration of Antihistaminic Activity of Orally Administered Compounds, J. Invest. Dermat., to be published.

ephedrine hydrochloride and pentobarbital sodium.[15] Thenylene® and histadyl® are trade names for methapyrilene hydrochloride. Both brands were tested. Chloroprophenpyridamine (chlor-trimeton) maleate, a new antihistaminic agent not yet commercially available at the time of writing, has been tested in 10 subjects. This drug had practically no effect on the histamine threshold after the oral administration of the recommended dose of 2 mg. Figure 2 shows the comparative antihistaminic activity of the various drugs in a more graphic form.

In the course of testing, it was noted that different subjects varied widely in their response to the same drug. In order to demonstrate this variation, the 30 subjects tested with the three most active antihistaminic drugs, diphenhydramine hydrochloride, tripelennamine hydrochloride and pyranisamine maleate were grouped according to the amount of histamine base "blocked." Figure 3 shows these findings. The average amount of histamine base "blocked" for the group as a whole was 0.70 micrograms (table 2). However, the range of activity extended from almost no antihistaminic effect

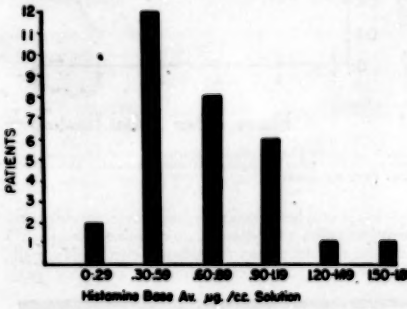


Fig. 3.—Variation in individual responses to antihistaminic drugs.

to a maximum of 1.89 micrograms. The largest group consisted of the twelve subjects with levels of 0.30 to 0.59 micrograms.

COMMENT

Experience with histamine electrophoresis as previously described has convinced us that it is a reliable and accurate method of determining in man the relative antihistaminic activity of various drugs. The method is not actually quantitative since it does not measure the amount of histamine penetrating the skin. However, as shown in table 1 and figure 2, it does measure degrees of antihistaminic activity in a clearcut manner. Thus tripelennamine hydrochloride, pyranisamine maleate and diphenhydramine hydrochloride were definitely superior to the other drugs in altering the histamine whealing threshold. This is an interesting observation, since these three drugs were the first of the so-called antihistaminic drugs introduced commercially.

It was shown in figure 3 that different persons vary widely in their response to the same antihistaminic drugs. These data correlate closely with clinical experience. For example, most patients with urticaria respond well to treatment. However, it is not uncommon in this syndrome to encounter partial or complete failures despite adequate antihistamine therapy. From the data in figure 3, it might be predicted that 12 of the 30 subjects would show a mediocre response to treatment, and that 2 would show none at all. Evidence supporting this supposition has been presented by Perry and LeVan.[16] They showed that antihistaminic compounds found to be low in degree of activity, as measured by this method of electrophoresis, are less satisfactory clinically.

Why the antihistaminic drugs are not effective in some persons is not understood. One possible explanation is a lack of absorption from the gastrointestinal tract. However, in other, unreported, data, we have studied 8 patients in whom the histamine whealing threshold was unaltered after oral administration of a number of antihistaminic drugs. These same subjects also demonstrated no change after the intravenous administration of tripelennamine hydrochloride, indicating that lack of response is not due to faulty absorption. This is a fundamental problem in antihistamine therapy which needs further study and clarification.

In carrying out this study, a number of subjects were retested over a period of several months. This raised the possibility that individual persons might show some evidence of histamine desensitization. However, an evaluation of the results in the group subjected to repeated testing failed to support this possibility. Their average initial histamine threshold when first tested was 0.28 micrograms of histamine base per cubic centimeter as compared with an average initial threshold of 0.31 micrograms in the final test, an insignificant change.

We wish to point out that the antihistaminic compounds have many other actions, such as antiacetylcholinic, local anesthetic, sympathomimetic or sympatholytic. Antispasmodic and quinidine-like properties have also been shown by some of these drugs. Therefore, those compounds which showed less activity so far as actual antihistaminic effects are concerned may well be superior in other actions.

SUMMARY

1. With the utilization of histamine electrophoresis, the commercially available antihistaminic drugs have been evaluated.

2. The method used consists of iontophoresis of serial dilutions of histamine base. The initial threshold is determined by the highest dilution of histamine base producing diffuse punctate whealing at the site of the positive electrode. The drug to be tested is then administered orally and the threshold again determined one and two hours later. The difference between the initial and subsequent readings is the measure of the antihistaminic activity of the test drug.

3. The results show tripelennamine (pyribenzamine®) hydrochloride, diphendramine (benadryl®) hydrochloride and pyranisamine (neo-antergan®) maleate to be the most active antihistaminic drugs, as determined by this method. The other antihistaminic drugs, in decreasing order of activity, are: phenindamine (thephorin®) tartrate, diatrin® (N,N-dimethyl-N'-phenyl-N'-[2-thienylmethyl]-ethylene-diamine monohydrochloride), prophenpyridamine (trimeton®), doxylamine (decapryn®) succinate, chlorothen (tagathen®)

15. Each tablet of this proprietary drug contains 50 mg. of methapyrilene hydrochloride, 16 mg. of ephedrine hydrochloride and 16 mg. of pentobarbital sodium.

16. Perry, D. J., and LeVan, P.: Laboratory and Clinical Comparison of the "Antihistaminic" Effect of Hydrylin and Four Experimental Compounds, to be published.

citrate, methapyrilene (thenylene® and histadyl®) hydrochloride, thonzylamine (neohetramine®) hydrochloride and antazoline (antistin®) hydrochloride.

4. The data also demonstrate a variation in activity in different persons receiving the same antihistaminic drug. These data correlate closely with the clinical experience.

3875 Wilshire Boulevard.

ABSTRACT OF DISCUSSION

DR. D. M. PILLSBURY, Philadelphia: This test furnishes a convenient means of determining the neutralizing effect of various compounds on histamine introduced into the skin by iontophoresis, and it is a reasonably good screening method in man for such compounds. As Dr. Sternberg pointed out, there is reasonable correlation between the results of these tests and the clinical effectiveness of the compounds. Certainly, those compounds showing little or no antihistaminic effect, as determined by this method, are clinically not good. The ones showing the most effect are generally accepted as being useful, provided, of course, they do not have side effects, which this method will not demonstrate. Hearin and Mori have done a somewhat similar study, using exactly the same method. Dr. Sternberg and his co-workers studied thirteen compounds, of some of which I had never heard, and the names of which I do not propose to try to remember. My associates and I have studied five compounds in regard to the differences in the effect produced by various doses on histamine introduced into the skin. These doses were 12.5, 25, 50, 75, 100, 150 and 200 mg. These studies have been carried out in some two hundred and thirty different experiments on human subjects. The quantitative results compare extremely well with those given by Dr. Sternberg. In his report, the dose of 50 mg. was used in most of the compounds as the dose of preference. In the case of hydryllin, diphenhydramine (benadryl®) hydrochloride and tripelennamine (pyribenzamine®) hydrochloride a satisfactory level of antihistaminic activity seems to be produced by 50 mg. The effect is not increased by raising the dose. We have noted a similar difference in the effect of the same drug on different patients. Shelley and Goldstone have studied the histamine-neutralizing effects of these compounds when they are introduced into the skin by iontophoresis, and similar results to what has been described here have been shown. I think, as Dr. Sternberg has pointed out, that physicians must look for compounds with effects other than antihistaminic, to try to determine other noxious substances released in the skin which might produce these lesions that are seen, and they must look for other effects, such as local anesthetic actions. Dr. Sternberg has pointed out the confusing number of compounds which are now available. I hope that no more are introduced unless they are clearly shown to have a great margin of superiority.

DR. T. H. STERNBERG, Los Angeles: I agree that the fundamental problem involved now is not so much the production of a large series of drugs but the determination of why a sizable proportion of patients fail to show the expected clinical response even after administration of the most effective antihistaminic agents. Haley and Harris (Haley, T. J., and Harris, D. H.: The Effect of Topically Applied Antihistaminic Drugs on the Mammalian Capillary Bed, J. Pharmacol. & Exper. Therap. 95:293 [March] 1949) exteriorized the mesoappendix of Wistar strain rats for perfusion and microscopic observation. By studying the effects of various antihistaminic drugs, acetylcholine and histamine they found that acetylcholine and histamine produced vasodilatation in the capillary bed and that the antihistaminic drugs acted by producing a vasoconstriction of the capillary bed through an effect on the precapillary sphincters. They feel that antihistaminic drugs act through vasoconstriction and compete with the action of histamine and acetylcholine. Thus they do not neutralize or antagonize but are competing for the same site of action.

TREATMENT OF ACUTE NONSPECIFIC PERICARDITIS WITH AUREOMYCIN

M. TAUBENHAUS, M.D.
and
WILLIAM A. BRAMS, M.D.
Chicago

The clinical features of acute nonspecific pericarditis, an inflammatory condition of the pericardium, have been described by Burchell,[1] Logue and Wendkos,[2] Talmadge,[3] Wolff[4] and Barnes and Burchell.[5] Briefly, the condition is usually preceded by an upper respiratory infection or sore throat, but there are no evidences of active rheumatic infection in the joints or heart. Similarly, other causes for pericarditis, such as tuberculosis, myocardial infarction and uremia, are absent.

The onset is generally abrupt with fever, malaise and substernal or precordial pain which is worse on deep breathing, movement of the trunk or swallowing. Partial relief of pain is attained by assumption of the sitting posture or by leaning forward. A pericardial friction rub is heard early, and the classic electrocardiographic patterns of acute diffuse pericarditis appear in most instances. Pericardial effusion may develop and may require paracentesis, but no permanent cardiac damage or harmful sequelae have been reported.

Treatment has been limited to bed rest and relief of symptoms until this relatively benign disease had run its course, usually a matter of two to four weeks, occasionally longer. Sulfonamide drugs, streptomycin and penicillin have proved ineffective in the treatment of this condition and have been discarded.

The possibility that acute nonspecific pericarditis might be caused by a virus and the favorable effects obtained with aureomycin in so-called atypical pneumonia, which is believed to be a virus disease (Kneeland, Rose and Gibson,[6] Schoenbach and Bryer,[7] Finland, Collins and Wells[8]) suggested the possibility that this antibiotic might prove beneficial. Aureomycin was accordingly administered to 2 patients in whom bed rest, other antibiotics and other therapeutic measures failed to provide relief and in a third patient early in the course of pericarditis. The beneficial effects were so prompt and striking that we deemed it worth while to report our results in order that other observers might evaluate the merits of this method of treatment.

REPORT OF CASES

CASE 1.—S. L., a man aged 52, was admitted to the Michael Reese Hospital Jan. 12, 1949. He had been treated in 1937 for a heart ailment associated with chest pain, but he did not know the nature of the illness. Two days before the present admission there developed an incessant, nonproductive cough and severe pain in the upper and anterior portion of the left side of his chest. The pain radiated down the left arm and was aggravated by coughing or deep breathing. There was impaired resonance, and a few rales were found at the base of the left lung posteriorly. Fever was moderate (ranging up to 100 F.), and

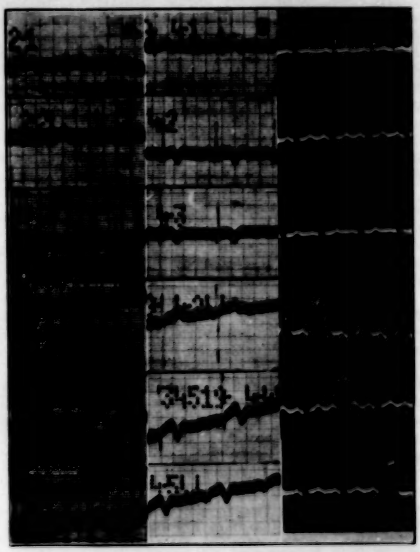
From the Department of Medicine and of Cardiovascular Research, Michael Reese Hospital.

1. Burchell, H. B.: Mod. Concepts Cardiovas. Dis. 16:[n.p.] (March) 1947.
2. Logue, R. B., and Wendkos, M. H.: Am. Heart J. 36:587 (Oct.) 1948.
3. Talmadge, W. G.: Am. Heart J. 29:623 (May) 1945.
4. Wolff, L.: New England J. Med. 230:422 (April 6) 1944.
5. Barnes, A. R., and Burchell, H. B.: Am. Heart J. 23:247 (Feb.) 1942.
6. Kneeland, Y.; Rose, H. M., and Gibson, C. D.: Am. J. Med. 6:41 (Jan.) 1949.
7. Schoenbach, E. B., and Bryer, M. S.: Treatment of Primary Atypical Nonbacterial Pneumonia with Aureomycin, J. A. M. A. 139:275 (Jan. 29) 1949.
8. Finland, M.; Collins, H. S., and Wells, E. B.: New England J. Med. 240:241 (Feb. 17) 1949.

a loud pericardial friction rub was heard over the entire precordium. Venous pressure was 19 cm. of water and circulation time was 19 seconds. The electrocardiogram showed the typical pattern of acute diffuse pericarditis, and roentgenologic examination of the chest revealed pronounced enlargement of the cardiac shadow with globular configuration suggesting pericardial effusion. Pericardial paracentesis was performed four times, and 50 to 100 cc. of turbid, amber-colored fluid was obtained each time. This fluid contained some white and red corpuscles but remained sterile on culture and guinea pig inoculation.

The white blood cell count was 21,400 with 79 per cent polymorphonuclear cells, and the sedimentation rate (Wintrobe) was 36 mm. in one hour. Three successive blood cultures remained sterile, and various agglutination tests, including those for several types of virus infection, were negative.

Despite treatment with bed rest, symptomatic therapy, sulfonamide drugs, penicillin and streptomycin, the patient grew



Serial electrocardiograms in case 3. *A*, July 6, three days after the onset of symptoms and two days after aureomycin therapy was started. *B*, July 12, five days after all systemic manifestations had disappeared and one day after aureomycin was discontinued. *B*, September 21, after the patient was well. It will be noted that there was a distinct lag between the disappearance of fever and all other systemic manifestations and return of the electrocardiogram to normal.

progressively worse. The cough, pain, cyanosis and dyspnea became more pronounced, and the temperature rose to 104 F. All medicinal treatment was stopped at this point, and 1 Gm. of aureomycin was administered orally every six hours for four days and 0.5 Gm. every six hours for the next three days.

The response was dramatic. The general condition of the patient was improved remarkably on the second day of aureomycin therapy. Pain became much less severe, the temperature did not rise above 100 F., and the pulse rate did not exceed 80 per minute despite the fact that the apparent size of the heart remained unchanged and a pericardial friction rub could still be heard. Improvement after this was rapid and progressive. The pericardial friction rub disappeared two days later, and the heart became smaller. The patient was discharged from the hospital sixteen days after commencement of aureomycin therapy, and he returned to his previous work two and a half weeks later.

The nature of the previous illness in 1937 could not be determined. It might have been a myocardial infarction or an attack of acute nonspecific pericarditis. It is known that recurrence is not at all rare in this form of pericarditis, and some weight can be given to such a possibility because the patient withstood severe physical hardships in the interval between attacks. The pericardial effusion, high fever during this attack and dramatic response to aureomycin after other therapy had failed speak against pericarditis associated with recent myocardial infarction. Finally, the prompt recovery and early return to full work also support the supposition that the pericarditis was infectious but not tuberculous or rheumatic in origin.

Case 2.—D. K., a man aged 25, was seen with Dr. O. Stein, who consented to have the patient included in our report. The man's illness began about one month before his admission to the Michael Reese Hospital with fever which lasted two weeks. A diagnosis of influenza was made, but two weeks before admission the fever returned there was precordial pain and a nonproductive cough developed. A pericardial friction rub was now heard, and rheumatic pericarditis was suspected because the patient had chorea at the age of 14. However, there had never been joint symptoms, and there was no evidence of rheumatic joint involvement or valvular disease at this time. Bed rest and salicylates were without effect; all the manifestations became worse, and the temperature rose to 104 F.

Examination at the time of admission to the hospital revealed a heart rate of 120, decided enlargement of the heart, dulness on percussion and a loud pericardial friction rub over the entire precordium. The lower lobe of the left lung showed impaired resonance and a few crepitant rales.

The white blood cell count was 20,600 with 88 per cent polymorphonuclear cells. Blood cultures were consistently sterile. Roentgen examination of the chest showed pronounced cardiac enlargement suggestive of pericarditis, and the electrocardiogram showed the changes usually seen in acute diffuse pericarditis.

Bed rest, salicylates and symptomatic treatment for fifteen days failed to result in improvement, even when 600,000 units of penicillin was given daily. The patient was then given 500 mg. of aureomycin orally four times a day, with striking improvement on the second day after this antibiotic was administered. Improvement was rapid and progressive, and recovery was complete after eleven days of aureomycin therapy. As in the first patient, cardiac enlargement persisted for several days after improvement was apparent, but all symptoms disappeared and the size of the heart returned to normal within a few days.

The administration of aureomycin apparently resulted in prompt and rapid recovery after a previously stormy course. It is hardly a mere coincidence that improvement began so promptly after aureomycin was given these 2 patients in whom previous therapy had apparently failed.

Case 3.—A boy 15 years of age was admitted to the Michael Reese Hospital on July 3, 1949. He had a fairly loud systolic murmur at the apex of the heart for several years, but there was no history of rheumatic fever or scarlet fever, and no other cardiac abnormalities were present. He ran after a bus one day before admission to the hospital, at which time he experienced severe precordial pain which did not radiate. The pain persisted for several hours, and fever (99 F.) developed. Next day a loud pericardial friction rub was heard, although cardiac enlargement was not detected on physical examination. The temperature rose to 102.4 F., and two blood cultures remained sterile. An electrocardiogram showed the typical pattern of acute diffuse pericarditis, but there were no other abnormal physical or laboratory observations. Aureomycin was administered on July 4, one day after admission, in doses of 2 Gm. daily. The patient felt better the next day, the temperature fell to 100.8 F., but the pericardial rub could still be heard. The patient continued to improve, and the temperature returned to normal three days after aureomycin therapy was started.

Aureomycin was given four more days in doses of 1 Gm. daily. The patient left the hospital one week later feeling perfectly well.

Follow-up studies revealed that, in spite of the clinical recovery of the patient and return of the sedimentation rate to normal at the time of his discharge, the electrocardiogram continued to show typical further evolution of the pericarditis pattern.

One week after the patient left the hospital, when he was permitted to leave his bed for brief periods, he again experienced chest pain similar to, but not as severe as, that during the first episode. The temperature rose to 99.6 F. Physical examination revealed a tachycardia of 100, but no definite rub could be heard. The patient was again given aureomycin, 0.5 Gm. every six hours for the first twenty-four hours and 0.25 Gm. every six hours for the next four days; he promptly responded to the treatment.

The question may be raised whether the pericarditis in this case might have been rheumatic in origin, especially since a murmur was heard for several years prior to the onset of the pericarditis. Against such an assumption is the absence of a rheumatic history or evidence of rheumatic heart involvement other than the murmur. The prompt response to aureomycin, the absence of residual cardiac involvement, the sudden onset and the absence of joint involvement speak strongly for a nonrheumatic origin.

COMMENT

The possibility that aureomycin might be useful in acute nonspecific pericarditis suggested itself because this antibiotic has been of value against pneumonia of virus origin. There is no conclusive evidence that acute nonspecific pericarditis is due to virus infection, although the opinion has been expressed that this might be the case.

Other causes for the pericarditis in our patients were excluded. No bacteria could be found in the pericardial fluid on smear or culture. Repeated blood cultures were consistently sterile, and the course of the disease was benign, leaving no residual cardiac damage. We recognized that negative evidence is not absolutely convincing so far as exclusion of rheumatic infection is concerned, but this type of infection could be excluded, in our judgment, by the absence of a history of rheumatic infection or of evidence of joint involvement or other manifestations of rheumatic heart disease. The rapid recovery without residual damage or sequelae and the prompt response to aureomycin also contraindicate rheumatic infection. Tuberculosis can be excluded on similar grounds as well as on the basis that guinea pig inoculation and bacteriologic studies of the pericardial fluid were negative. The same may be said of other causes of pericarditis such as myocardial infarction and uremia.

It may be argued that the disease in our cases was benign and self limited and that improvement after aureomycin therapy was merely coincidence. This is hardly likely in view of the prompt and impressive improvement with rapid recovery in all 3 patients, especially when other forms of therapy in 2 patients were apparently ineffective and the clinical course became progressively worse until aureomycin was administered.

Of further interest is the observation that fever fell and subjective improvement was definite even before the pericardial rub and other physical observations changed appreciably. It is noteworthy that the pathologic process in the subepicardial layers must have gone on, as evidenced by the progressive changes in the electrocardiogram of case 3, even after clinical improvement was apparent and the sedimentation rate had returned to normal. This would speak for the possibility that systemic toxicity is affected favorably even before local abnormalities are improved appreciably. Similar phenomena have been observed with sulfonamide drugs and other antibiotics when used in a variety of other infections.

SUMMARY

Final conclusions cannot be drawn from results of aureomycin therapy in a series of 3 patients with acute nonspecific pericarditis, and our report contains no controlled cases. However, the striking results are suggestive and prompt us to publish them in the hope that the validity of our observations may stimulate others to make further studies of this comparatively rare disease.

55 East Washington Street (2).

APPLICATION OF CYTOLOGIC SMEAR METHODS TO CANCER DIAGNOSIS IN A GENERAL HOSPITAL

THOMAS W. BOTSFORD, M.D.
and
MARTHA B. TUCKER, A.B.
Boston

Although the value of the cytologic smear as an aid in the diagnosis of cancer has been established by investigators [1] working intensively with large groups of potential tumor patients, there are relatively few general hospitals prepared to apply this method to their unselected hospital admissions. Our experience since 1946 in instituting this method of diagnosis at the Peter Bent Brigham Hospital represents a practical test of the method in circumstances which it will probably encounter on a wide scale, in that the preparation, staining and interpretation of cytologic smears was undertaken by previously inexperienced personnel in a general hospital. A considerable period of preparatory study was necessary before the laboratory was made available for daily clinical use. This period of study under the guidance of experienced persons is a necessary preliminary to any worth while application of this method, since professional and technical personnel must acquire proficiency in interpreting the stained smears. Once this educational process was complete, the laboratory could be opened for routine studies of patients on admission to the hospital. This report presents a critical analysis of our experience in the past three years with the cytologic diagnosis of cancer as applied to an unselected hospital population.

The technic of making and staining smears is relatively standard. The technics originally described by

From the Surgical Service, Peter Bent Brigham Hospital.
Instructor in Surgery, Harvard Medical School (Dr. Botsford).

This study has been made possible by a grant from the American Cancer Society, Massachusetts Division.

1. (a) Papanicolaou, G. N., and Traut, H. F.: Diagnosis of Uterine Cancer by the Vaginal Smear, New York, The Commonwealth Fund, 1943. (b) Meigs, J. V.; Graham, R. M.; Fremont-Smith, M.; Kapnick, I., and Rawson, R. W.: Value of Vaginal Smear in the Diagnosis of Cancer, Surg., Gynec. & Obst. 77: 449 (Nov.) 1943. Gates, O., and Warren S.: Vaginal Smear in Diagnosis of Uterine Cancer, Am. J. Path. 21: 167 (July) 1945. Isbell, N. P.; Jewett, J. F.; Allan, M. S., and Herrig, A. T.: A Correlation Between Vaginal Smear and Tissue Diagnosis in 1,045 Operated Gynecologic Cases, Am. J. Obst. & Gynec. 54: 576 (Oct.) 1947.

Papanicolaou [2] for application to the various body fluids are the procedures of choice, and in general any fluid that will stick to a glass slide can be adapted to this method. The chief factor in obtaining good cell detail is to fix the smear immediately. If the stained smear shows unsatisfactory cell detail the technician should so state and should request that a repeat smear be made rather than make an unsound diagnosis on a poorly fixed and poorly stained smear. In one patient of our series a carcinoma of the cervix uteri would have been missed except for this precaution. We have found that, with the exception of gastric contents, there is little difficulty in obtaining satisfactory smears of various bodily secretions.

Photomicrograph (× 450) of a vaginal smear from an asymptomatic woman aged 65. This smear was read as class 4 (few tumor cells) because of the cells in the clump and along its upper right margin with hyperchromatic nuclei, slightly prominent nucleoli and scanty cytoplasm. The elongated cells are probably normal endocervical cells. Three biopsies of the cervix have shown only chronic cervicitis, and six subsequent vaginal smears have shown no similar cells. This is classified as a false positive result, but the patient is still being followed.

The actual cost of individual smears is low, and in our laboratory the average cost per smear to date is about $1. The time involved to prepare and stain smears is relatively small, and the major portion of the technician's time is spent in interpretation. The interpretation of the cytologic smear is the most difficult aspect of the method. Each smear requires three to five minutes, and if there are any unusual cells, which is more often the case, fifteen to twenty minutes per smear is required. If one has not reached a decision after studying a smear for twenty minutes, it is best to set the smear aside and look at it again the next day. Conclusions must not be made from the study of such smears except by those who are familiar with the normal cells and their variants of the region of the body under investigation. When these are recognizable, malignant cells, if present, usually can be identified. Even in the most experienced hands some cytologic smears may be impossible to classify.[3]

The two mistakes that are encountered in cytologic diagnosis are the false positive report and the false negative report. In our opinion a false positive report is one in which malignant cells have been identified in a smear but the clinical examination of the patient, biopsy of the suspected lesion and repeat smears have not confirmed the diagnosis of cancer. The danger of the false positive report is that unnecessary radical therapy may be performed without further confirmation of the diagnosis. This mistake may be due to failure to recognize the presence in the smear of atypical normal cells. It must be remembered that the false positive result may be a true positive, and the patient should be examined frequently to seek the source of the abnormal cells. In this respect a single biopsy may be interpreted as normal and yet the patient may have cancer; serial sections of biopsy material should be made lest an early lesion be overlooked. An example of one of our false positive smears is shown in the accompanying illustration.

The false negative smear means that the patient has cancer but the smear of the exfoliated cells from that region of the body shows no malignant cells. This error gives an unjustified sense of security to patient and physician alike and is the most dangerous type of error. This weakness is inherent in the method, which is based on the rationale of exfoliation of tumor cells when the tumor faces on an open surface. Thus the smear may not be representative, and tumor cells may not be present. Poor fixation and poor staining of the smear may contribute to this mistake. The patience and training of the person interpreting the smear is of utmost importance. There are no short cuts to the examination of a cytologic smear, there is no tissue architecture to follow, and the entire smear must be carefully scanned. A negative smear does not guarantee that the patient does not have cancer, and in no way should a negative smear influence the ordinary indications for further clinical investigation. Because of the foregoing facts we have tried to avoid the use of the terms positive and negative in reporting the results of cytologic smears. For over two years we have used a modified version of Dr. G. N. Papanicolaou's method of reporting the results of interpretation of smears:

Class 1. No tumor cells found.

Class 2. No tumor cells found, but evidence of abnormal conditions as manifested by many leukocytes, red blood cells, atrophic cells, trichomonas, histiocytes or lack of estrogenic activity.

Class 3. Questionable cells found, which could or could not be tumor cells; smear should be repeated.

Class 4. Tumor cells found (few).

Class 5. Tumor cells found (many).

Our results are reported herein on the basis of the first smear, and class 3 (suspicious) smears are counted as errors.

2. Papanicolaou, G. N., and Cooper, W. A.: The Cytology of the Gastric Fluid in the Diagnosis of Carcinoma of the Stomach, J. Nat. Cancer Inst. 7:357 (April) 1947. Papanicolaou, G. N.: Cytology of the Urine Sediment in Neoplasms of the Urinary Tract, J. Urol. 57:375 (Feb.) 1947; Diagnostic Value of Exfoliated Cells from Cancerous Tissues, J. A. M. A. 131:372 (June 1) 1946. Papanicolaou and Traut.[1a]

3. Papanicolaou, G. N.: Personal communication to authors.

CARCINOMA OF THE UTERUS

Vaginal smears were made routinely on all patients examined in the gynecologic clinic and on all women admitted to the hospital regardless of their chief complaint. A total of 3,000 women were examined, and approximately 25 per cent of them had gynecologic complaints. However, this series cannot be construed to be a "screening test" in the public health sense of the word. There were 65 patients with uterine cancer in this group, of whom 43 had carcinoma of the cervix uteri and 22 had carcinoma of the endometrium.

A correct diagnosis of carcinoma was made on a single initial vaginal smear in 40 of the 43 cervical cancers, a diagnostic error of 6.9 per cent (table 1). A careful review of the clinical records of the patients with proved carcinoma of the cervix showed that 38 patients were suspected of having cancer from their signs and symptoms. The initial smears showed malignant cells in all except 3 patients of this group; the case histories of these patients are briefly summarized.

CASE 1.—A white woman aged 56 entered the hospital because of postmenopausal bleeding of six months' duration. Examination showed a large eroded area on the cervix, which the biopsy proved to be epidermoid carcinoma. The initial vaginal smear was class 1 (no tumor cells), but repeat smears were class 5 (many tumor cells).

CASE 2.—A Jewish housewife aged 53 entered the hospital because of postmenopausal bleeding of five months' duration. Examination showed a friable cervix that bled easily. The biopsy of the cervix showed an anaplastic carcinoma. The initial vaginal smear was class 1, but subsequent smears were class 5 (many tumor cells).

CASE 3.—A white housewife aged 49 entered the hospital because of postcoital bleeding. The vaginal smear was class 1 (no tumor cells), but biopsy of the eroded cervix showed squamous cell carcinoma. No repeat smears were made prior to treatment.

There were 5 patients in whom the presence of carcinoma of the cervix was unsuspected and the primary diagnosis was made by the initial vaginal smear. Brief summaries of the histories of these patients follow:

CASE 4.—A Jewish housewife aged 45 entered the hospital because of cholelithiasis. She had had no abnormal vaginal bleeding or discharge. The cervix showed no lesion. The routine vaginal smear was class 4 (few tumor cells). A biopsy of the cervix was made and showed no tumor. The biopsy was repeated and was reported as epidermoid carcinoma of the cervix.

CASE 5.—A white woman aged 45 had been followed in the outpatient department for one year because of dysmenorrhea and pain in the left lower abdominal quadrant. A diagnosis of pelvic inflammatory disease had been made at another hospital one and one-half years previously. There was a tender mass in the left vault. The vaginal smear was class 4 (few tumor cells), and biopsy of the cervix showed carcinoma in situ.

CASE 6.—A white woman aged 59 entered the hospital for repair of a systocele and rectocele. A supracervical hysterectomy had been performed fifteen years previously. The routine admission vaginal smear was class 5 (many tumor cells). The cervix was nodular because of chronic infection, but there was no suspicious area for biopsy. The cervical stump was amputated, and serial sections of the specimen showed carcinoma in situ.

CASE 7.—A Jewish housewife aged 48 entered the hospital because of a cystocele and rectocele. The cervix was small, smooth and normal in appearance. The initial vaginal smear was class 5 (many tumor cells). The first biopsy of the cervix showed no cancer. A second biopsy showed epidermoid carcinoma. Radical hysterectomy and dissection of the pelvic lymph nodes was performed. The specimen showed no evidence of lymphatic extension of the carcinoma, but there was early local invasion.

CASE 8.—A white woman aged 70 entered the hospital because of acute cholecystitis. There had been no postmenopausal bleeding, and the cervix was clean and appeared normal. The initial vaginal smear was class 5 (many tumor cells). Biopsy of four areas of the cervix was made before a diagnosis of squamous cell carcinoma of the cervix was made.

Of the 22 patients with carcinoma of the endometrium, a correct diagnosis by smear was made in 19 instances, an error of 13.1 per cent (table 2). The diagnosis of endometrial carcinoma was suspected because of signs and symptoms in 17 patients, but in 2 of these patients the initial vaginal smears showed no malignant cells. The diagnosis was proved by examination of the endometrial curettings, and the negative smears did not delay the treatment of these patients.

TABLE 1.—*Carcinoma of the Cervix*

Number of patients with carcinoma of the cervix	43
Initial single smear positive (tumor cells present)	40
Initial single smear negative (no tumor cells found)	3
Clinical diagnosis primary	38
Primary diagnosis by smear	5

TABLE 2.—*Carcinoma of the Endometrium*

Total number of patients with endometrial carcinoma	22
Initial single smear positive (tumor cells present)	19
Initial single smear negative (no tumor cells found)	3
Clinical diagnosis primary	17
Primary diagnosis by smear	4
Diagnosis missed by smear and clinically	1

One instance of carcinoma of the endometrium was unsuspected clinically, and a single vaginal smear showed no tumor cells. The correct diagnosis was only made when the uterus was removed incidental to surgical intervention for an ovarian tumor. The case report follows.

CASE 9.—A white housewife aged 37 entered the hospital because of pain in the left lower abdominal quadrant. Examination showed a mass the size of an orange in the left side of the pelvis. This mass was found to be a cystadenocarcinoma of the left ovary, and a total hysterectomy and bilateral salpingo-oophorectomy was performed. The specimen showed a small primary adenocarcinoma of the endometrium as well as the ovarian tumor. Careful review of the vaginal smear showed no cells that could be called malignant.

There were 4 instances in which the primary diagnosis of cancer of the endometrium was made by smear in patients who were not suspected of having cancer:

CASE 10.—A white woman aged 46 received a routine physical examination. Her menstrual flow had been scanty and periods irregular for one year. The uterus was symmetric and freely movable but slightly enlarged. The vaginal smear was class 4 (few tumor cells). The uterine curettings showed adenocarcinoma, and the extirpated uterus showed a small carcinoma.

CASE 11.—A white woman aged 68 was seen because of a purulent vaginal discharge. A diagnosis of trichomonas vaginitis was made, but the cytologic smear was class 5 (many tumor cells). The endometrial curettings showed adenocarci-

noma, which in the extirpated uterus was found to be small and well localized.

Case 12.—A white woman aged 48 entered the hospital because of fever and abdominal pain of two weeks' duration. Her abdomen was tender and the uterus enlarged to the size of an orange. The vaginal smear was class 5 (many tumor cells), and the uterine curettings showed adenocarcinoma. At laparotomy the patient was found to have generalized peritonitis, which was the preoperative diagnosis. The patient died on the third postoperative day. Autopsy showed a large fibroid uterus but no carcinoma remaining after the curettage. The cause of the peritonitis was a perforated appendix.

Case 13.—A white housewife aged 65 entered the hospital for treatment of bleeding hemorrhoids. Pelvic examination showed no abnormalities. The routine vaginal smear was class 5 (many tumor cells). The endometrial curettings showed carcinoma.

Early diagnosis of unsuspected uterine cancer was made in 5 patients with cervical carcinoma and in 4 patients with adenocarcinoma of the endometrium. This can be restated to say that of 10 patients with unsuspected cancer of the uterus, a primary diagnosis of carcinoma was made by a single initial vaginal smear in all these patients except 1, an error of 10 per cent. Regardless of the results of statistical evaluation, the 9 patients with a primary diagnosis of uterine cancer by smear represent early diagnosis of unsuspected cancer and are unshakable evidence of the value of this method of diagnosis. As stated previously, 1 unsuspected endometrial cancer was missed both by smear and by clinical examination and was found only because of other indications for hysterectomy.

Fifty-five patients had signs and symptoms suggestive of uterine cancer, and the initial vaginal smear contained malignant cells in all but 5 instances, an error of 9.1 per cent. Three patients with obvious carcinoma of the cervix and 2 patients with clinical evidence of carcinoma of the endometrium showed no tumor cells in their smears and represent the 5 errors in clinically suspected uterine carcinoma. The over-all results in 65 uterine carcinomas showed a diagnostic error of 9.2 per cent by single initial smear. A false positive error was made in 21 of 2,935 patients, an error of 0.7 per cent.

CARCINOMA OF THE URINARY TRACT

The urinary tract is suitable for the application of the cytologic technic because of the ready availability of large amounts of cell-containing fluid. Smears of the urinary sediment were made from 373 patients admitted to the urologic service. Seventy-eight of these patients had carcinoma, and in all but 2 tumor cells were present in the initial smears. Twelve false positive diagnoses were made in 295 patients, an error of 4.1 per cent, but only 2 false negative results have been encountered. The study of urine sediment is an invaluable aid to the postoperative follow-up of patients with carcinoma of the bladder,[4] since, once a carcinoma has developed, new lesions can be expected to appear although the original lesion has been removed or destroyed. It has also been of aid in the primary diagnosis of carcinoma of the kidney and is a worthy addition to the exact methods of urologic diagnosis already available. A more detailed analysis of our experience with urine smears is in preparation.[4]

4. Botsford, T. W.; Harrison, J. H., and Tucker, M. R.: Unpublished Data.

CARCINOMA OF THE STOMACH

Our early experience with the cytologic diagnosis of gastric carcinoma was disappointing, in that we were unable to obtain uniformly satisfactory smears of gastric fluid. Since we have modified our technic of processing gastric contents our smears have been more uniformly reliable. With the present technic the patient to be studied has nothing by mouth for eight hours before a small soft rubber gastric tube is passed into the patient's stomach. Liquid petrolatum should not be used as a lubricant for the tube, and we prefer to use glycerin instead. Twenty to thirty cubic centimeters of isotonic sodium chloride solution is injected into the stomach, and then the gastric contents are aspirated and mixed immediately with an equal volume of 95 per cent alcohol. The mixture is centrifuged for ten minutes, and the sediment is spread on a glass slide thinly filmed with egg albumin. This smear is then fixed and stained as for the vaginal smears.[18] In a series of 10 patients we substituted 15 cc. of 70 per cent alcohol for the isotonic sodium chloride solution for gastric aspiration. Excellent fixation was obtained by this method, but we do not recommend its use as it may be harmful to patients with gastritis or peptic ulcer, although there were no untoward effects in our series.

In 17 of 23 patients with carcinoma the stomach smears of the gastric contents showed tumor cells, and a false positive diagnosis by smear was made in 4 of 101 patients. In this series of patients who were studied because of suggestive gastric symptoms, the accuracy of cytologic diagnosis has not approached that of roentgenologic examination. However, when a gastric smear shows malignant cells it is significant and of definite aid to the surgeon in the management of gastric lesions such as gastric ulcer. Smears of lesions of the colon and rectum can be made through the sigmoidoscope and are of diagnostic value. Wisseman, Lemon and Lawrence[5] have suggested that cytologic smears of the colon and rectum may be of value in the study of conditions other than malignant.

CARCINOMA OF THE LUNG

McKay and his co-workers[6] reported an accuracy of 40 positive smears of bronchial smears in 54 patients with carcinoma of the lung. They concluded that "a positive smear may be an indication for thoracotomy but not for pneumonectomy." This is a strong recommendation for the use of the smear technic in the diagnosis of carcinoma of the lung. We have studied sputums and bronchial washings from 121 patients, of whom 19 had pulmonary carcinoma. We made a correct diagnosis of 16 of the 19 lesions. Five false positive results were reported in 102 patients. In our experience, examination of bronchial washings is much more technically satisfactory than that of sputums, because the latter contain so much mucus and epithelium from the mouth and pharynx.

OTHER APPLICATIONS OF THE CYTOLOGIC TECHNIC

We have studied cytologic smears of ascitic fluid, pleural fluid, cyst fluid and spinal fluid. Fluid from these sources must be centrifuged and the sediment

5. Wisseman, C. L., Jr.; Lemon, H. M., and Lawrence, K. B.: Cytologic Diagnosis of Cancer of the Descending Colon and Rectum, Surg., Gynec. & Obst. 89:124 (Aug.) 1949.

6. McKay, D. G.; Ware, P. F.; Atwood, D. A., and Harken, D. E.: The Diagnosis of Bronchogenic Carcinoma by Smears of Bronchoscopic Aspirations, Cancer 1:208 (July) 1948.

fixed immediately. Good cell detail and about 80 per cent accuracy have been obtained. In our experience to date, the study of these types of fluid by the cytologic method has not offered the diagnostic aid that the method has in other regions of the body.

COMMENT

The cytologic diagnosis of cancer has its largest application, both in accuracy and practicability, in the diagnosis of uterine and urinary tract carcinoma. The secretions from these anatomic regions are constantly and easily available. Although the exfoliated cells from the stomach and lungs are not as easily available, the study of the cells from these sources provides a significant aid in the diagnosis of lesions of those areas.

The cytologic technic is not infallible, and it does not replace or contraindicate any other known means of cancer diagnosis. It is true that many instances of early cancer have been first diagnosed by this method, but it is also true that established clinical cancer can be missed by this same method. We have recently seen a patient who had a negative vaginal smear at another clinic four months previously. She had had some vaginal staining in the interim and was clinically suspected of having carcinoma of the cervix. The vaginal smear was class 5 (tumor cells present), and biopsy of the cervix showed carcinoma. Thus, a single negative smear of any material does not preclude the presence of cancer. In this respect the comment of Lombard and associates,[7] although in reference to vaginal smears as a screening test, is equally applicable to all smears called negative: "the final evaluation of the technic as a screening test cannot be made until the results of the follow-up study are known three years hence." A smear that shows tumor cells warrants further investigation of the patient, and repeated similar results are highly indicative that the patient has carcinoma in the region from which the secretions were obtained. This relatively new mode of diagnosis has aroused a realistic interest in the early diagnosis of cancer, an event that in itself is of inestimable importance.

SUMMARY

1. Experience with the cytologic technic of cancer diagnosis over a three year period in a general hospital is analyzed.

2. The significance of a positive (tumor cells present) smear versus a negative (no tumor cells found) smear is stressed.

3. The number of false positive diagnoses is small, and a positive smear is significant.

4. A single negative smear does not preclude the presence of cancer.

5. The method is of practical value in the diagnosis of uterine and urinary tract carcinoma and is easily applied to large numbers of patients.

6. The method is an aid in the diagnosis and management of gastric and pulmonary lesions.

7. The cytologic technic is elastic and can be applied to many body secretions, but it does not replace other methods of diagnosis.

7. Lombard, H. L.; Middleton, M.; Warren, S., and Gates, O.: Use of the Vaginal Smear as a Screening Test, New England J. Med. **239**: 317 (Aug. 26) 1948.

LATE SPONTANEOUS RUPTURE OF THE EXTENSOR POLLICIS LONGUS TENDON FOLLOWING COLLES' FRACTURE

EDWIN DAVID WEINBERG, M.D.
Baltimore

Subcutaneous rupture of the extensor pollicis longus tendon was first described in the latter part of the nineteenth century. Kettledrummers in the German army, especially beginners, were prone to lose the use of their thumbs. The military surgeons considered the lesion to be a nerve paralysis and called it "Trommlerlähmung" or "drummer's palsy." Dümms[1] subsequently revealed the loss of use of the thumb to be due to a tendon rupture. Instances have also been recorded of subcutaneous ruptures of tendons about the wrist which have occurred in carpenters, tailors and reed weavers.

Subcutaneous rupture of a tendon at the wrist is uncommon. When the tendon is subjected to any great strain, either the periosteal insertion may give way and carry with it a fragment of bone or a rupture may occur at the musculotendinous junction. In order to rupture spontaneously the tendon must have been previously damaged by either trauma or disease. Late subcutaneous rupture of the extensor pollicis longus tendon following Colles' fracture is infrequent. In 1932 McMaster[2] was able to find only 27 cases in the literature.

ANATOMY

The muscle fibers originate from the lateral part of the middle third of the dorsal surface of the ulna and the interosseous membrane. The fibers converge to form a long tendon; this passes through a separate compartment in the dorsal carpal ligament and lies in a narrow oblique groove on the back of the radius. On emerging from this compartment, it passes obliquely around the lateral bony ridge of the radial groove and crosses the tendons of the extensores carpi radialis longus and brevis, to the ulnar side of the first metacarpal, and is inserted into the base of the distal phalanx of the thumb (fig. 1). The tendon forms the ulnar border of the "anatomist's snuff box." The dorsal carpal ligament prevents its displacement when the wrist is hyperextended. The tendon is surrounded by a synovial sheath in which, normally, there is little synovial fluid present, but irritation increases the quantity of fluid.

MECHANISM

Various theories have been presented in an endeavor to explain the mechanism of this lesion following Colles' fracture. Kleinschmidt[3] produced fractures at the lower end of the radius in cadavers and always found a small tear in the extensor pollicis longus tendon or its sheath, resulting from a small fragment of bone,

From the Department of Orthopedic Surgery, Johns Hopkins Medical School and Hospital.

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1. Dümms, F.: Ueber Trommlerlähmungen, Deutsche Militärärzt. Ztschr. **25**: 145, 1896.

2. McMaster, P. E.: Late Ruptures of Extensor and Flexor Pollicis Longus Tendons Following Colles' Fracture, J. Bone & Joint Surg. **14**: 92, 1932; Tendon and Muscle Ruptures: Clinical and Experimental Studies on the Causes and Location of Subcutaneous Ruptures, ibid. **15**: 705, 1933.

3. Kleinschmidt, K.: Versuche zur Erklärung der Spätruptur der langen Daumenstrecksehne nach Radiusfraktur, Beitr. z. klin. Chir. **146**: 530, 1929.

while the other tendons remained intact. In the case reported by McMaster, the tendon ends were found to be divided by a sharp bony prominence on the back of the radius. Scudder expressed the belief that the rupture results from the tendon being caught up by

Fig. 1.—Extensor pollicis longus muscle.

Fig. 2.—The groove for the extensor pollicis longus is narrower, more oblique and deeper than the other grooves.

adhesions. In Ashhurst's [4] patient, the tendon was adherent to the callus. Axhausen [5] was of the opinion that the rupture is caused by the continual rubbing of the tendon over a sharp bone edge. Weigeldt [6] and Hauck [7] attributed it to the tearing of the mesotendon occurring at the time of fracture, with consequent disturbance of the blood supply resulting in necrosis and rupture. Kwedar and Mitchell [8] surmised that the rupture is due, most likely, to direct injury to the blood vessels. Smith [9] considered it to be the result of an aseptic necrosis caused by the disturbed blood supply of the tendon at the distal end of the groove. Lipshutz [10] explained it on a morphologic basis. In cadaver studies, he found considerable variation in the bony ridges which border the groove for this tendon. Microscopically, he noted a wide variation in the elasticity and muscle content of the blood vessels, regardless of age.

The groove for the extensor pollicis longus is much more oblique, deep and narrow than the grooves for the other tendons about the wrist (fig. 2). It is not difficult to visualize how this tendon, which is taut at the time of fracture, can be partially lacerated by being caught between a sharp fragment of bone and the strong, unyielding dorsal ligament. In many of the reported cases, however, the fracture was nondisplaced or so insignificant or incomplete that the rupture cannot

Fig. 3.—Slight epiphyseal displacement, lower end of right radius.

be explained on this basis. In these cases it must be assumed that the rupture is the result of the blood supply being disturbed either by a thrombosis of the vessels or by pressure from edema or hemorrhage. The decreased blood supply, in turn, causes adhesions, fraying and, finally, rupture of the tendon.

SYMPTOMS AND SIGNS

In the majority of cases there are no premonitory symptoms. Occasionally, the patient may have a sharp pain or may experience a snapping sensation when the rupture occurs. Previous to rupture, there may have been a sensation of weakness or soreness accompanied with inability to pick up small objects. On the other hand, the patient may be totally unaware that any mishap has occurred until he notices the dysfunction of his thumb.

4. Ashhurst, A. P. C.: Rupture of Tendon of Extensor Longus Pollicis Following a Colles' Fracture, Ann. Surg. **78**: 398, 1923.

5. Axhausen, G.: Tardy Rupture of Tendon with Fracture of Radius, Beitr. z. klin. chir. **133**: 78, 1925.

6. Weigeldt, W.: Ueber die Spontanrupturen der Fingersehnen, Beitr. z. klin. Chir. **94**: 310, 1914.

7. Hauck, G.: Ueber die Rupture der Extensor pollicis longus-Sehne nach typischem Radiusbruch und ihre operative Behandlung, Arch. f. klin. Chir. **134**: 81, 1923.

8. Kwedar, A. T., and Mitchell, C. L.: Late Rupture of Extensor Pollicis Longus Tendon Following Colles' Fracture, J. Bone & Joint Surg. **22**: 429, 1940.

9. Smith, F. M.: Late Rupture of Extensor Pollicis Longus Tendon Following Colles' Fracture, J. Bone & Joint Surg. **28**: 49, 1946.

10. Lipshutz, B.: Late Subcutaneous Rupture of the Tendon of the Extensor Pollicis Longus Muscle, Arch. Surg. **31**: 816 (Nov.) 1935.

Diagnosis is not difficult. The patient is unable to extend the distal phalanx of the thumb. The thumb droops as a whole, because of loss of the oblique pull of the tendon. The ulnar border of the "anatomist's snuff box" disappears. The tendon ends may be palpated. If the distal end of the tendon is bound down by dense adhesions to the lower end of the radial groove, the downward displacement of the distal phalanx may be slight. There are no sensory changes, and the tendon does not respond to faradic stimulation. Crepitation along the radial groove may be present. If the radial (posterior interosseous) nerve were involved, there would be inability to extend all the fingers at the metacarpophalangeal joints in addition to the thumb.

PATHOLOGIC PROCESS

The tendon ends may be frayed, and one or both ends may be attached to the surrounding tissues. The ends of the tendon may be enlarged, bulbous and have a yellowish appearance. There may be considerable retraction, especially of the proximal portion. The groove on the dorsum of the radius, through which the tendon passes, may be entirely obliterated by scar tissue. The distal end may be loosely attached. The

Fig. 4 (case 1).—Both hands, eleven and one-half years after operation. Note full extension of the right thumb.

proximal end may be difficult to identify and may be densely adherent to the callus in the radial groove. Microscopic examination reveals hyaline degeneration, evidence of old hemorrhage, infiltration with lymphocytes, fibroblasts and, at times, granulation tissue. In milder cases the tendon may be stretched and not completely separated, and it may or may not be adherent to the surrounding tissues. The site of the rupture is usually at the lower border of the radial tubercle.

TREATMENT

Treatment is surgical. Ideally, this consists of primary end to end suture. This may not be possible, however, because of the marked retraction of the divided tendon, the degree of adhesions or severe degenerative changes. The radial groove may be entirely filled with dense scar tissue which would prevent replacement of the tendon in its normal site. Frequently, an end to end suture can be accomplished subcutaneously. Platt [11] and Smith have emphasized the importance of retaining the oblique course of the tendon. If this is not accomplished, elongation of the tendon may result in inability to extend the distal phalanx completely. When an end to end suture is not possible, various forms of tenoplasty have been used. The tendon has been lengthened. Duplay [12] sutured the distal end to the extensor carpi radialis longus by making a buttonhole in this tendon. The distal end has also been sutured to the extensor pollicis brevis or to the abductor pollicis

Fig. 5 (case 2).—Both hands prior to operation. Note drooping of left thumb and loss of extension of distal phalanx.

longus. Smith has sutured the distal end to the extensor carpi radialis by side to side suture and then has brought the extensor pollicis brevis over the sutured tendon. Free tendon grafts have also been employed.

I have used grafts of dead ox fascia for the past eleven years, with favorable results, after an experimental study.[13] To review this study briefly, there was complete substitution of the graft in forty-two days, and the dead fascia was well tolerated, with no foreign body giant cell reaction except around the silk sutures.

Postoperatively, a cast is applied, extending from below the elbow to the metacarpophalangeal joints and the tip of the thumb, with the wrist in a slight cock-up position and the thumb extended and elevated. The cast is bivalved on the twelfth day, and guarded motions

Fig. 6 (case 2).—Left thumb. Comminuted fracture of lower end of radius, with moderate dorsal displacement and some derangement of the articular surface.

are instituted. The cast is discarded about the fourth week, and exercise is gradually increased. Useful function can be obtained only by operation. On the whole, results have been satisfactory.

11. Platt, H.: Observations on Some Tendon Ruptures, Brit. M. J. 1: 611, 1931.

12. Duplay, M.: Rupture sous—cutanée du tendon du long extenseur du pouce: Rétablissement de la faculté d'extension par une operation (suture de l'extrémité du tendon rompu avec le premier radial extreme), Bull. et mém. Soc. nat. de chir. 2: 788, 1876.

13. Weinberg, E. D.: Dead (Ox) Fascia Grafts in Tendon Defects, Arch. Surg. 37: 570 (Oct.) 1938.

REPORT OF CASES

CASE 1.—S. A., a schoolboy aged 16, was first seen on Nov. 12, 1937, two days after he had fallen on his outstretched right hand. Roentgenographic examination revealed a slight displacement of the lower radial epiphysis (fig. 3). Five weeks after the injury and one week after the removal of the splints,

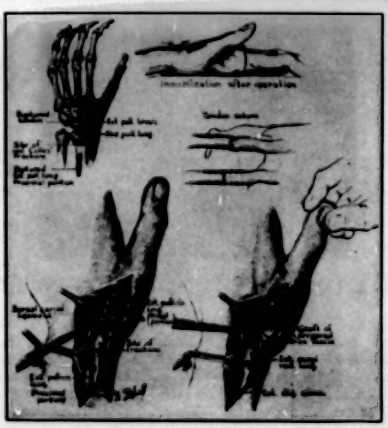

Fig. 7 (case 2).—Tendon ends bulbous and thickened. Note adhesions and retraction of tendon. Repaired with graft of preserved ox fascia.

he experienced a sharp pain on the back of the wrist while putting his hand into his pocket and thereafter was unable to use his right thumb normally.

At operation on Dec. 23, 1937, the extensor pollicis longus tendon was found to be ruptured just above the fracture site. The distal end was somewhat ragged and adherent. The proximal end had retracted above the dorsal carpal ligament. The radial groove was smooth. The tendon rupture was repaired by end to end sutures. Microscopic examination disclosed hyalinization of a moderate degree.

It is now eleven and one-half years since the tendon was repaired. Muscle tests made by the Kendalls of the Children's Hospital School revealed no weakness of the tendon. The patient has been able to use his thumb efficiently, even through

Fig. 8 (case 2).—Both hands, nine years after operation. Full extension of left thumb.

four years of military service (fig. 4). The only inconvenience he suffered was an inability to keep his thumb entirely straight during the conventional military salute.

CASE 2.—A. M., a 61 year old woman, was first seen on Jan. 12, 1940, seven weeks after she had sustained a Colles fracture of her left wrist. Eighteen days after the fracture she noted impairment in the use of her left thumb. The fracture had not been manipulated or immobilized. There was some thickening about the wrist, with about 25 per cent loss of flexion and extension, slight radial deviation and complete loss of extension of the distal phalanx of the thumb (fig. 5). Roentgenographic examination disclosed a comminuted fracture at the lower end of the left radius, with moderate dorsal displacement and some derangement of the articular surface (fig. 6).

The rupture was repaired on January 14. The distal end of the tendon was found to be bulbous, thickened and yellowish. It was bound down by adhesions. The proximal end had retracted and was also adherent. When the tendon ends were mobilized and resected, there existed a gap of 6 cm., in which a graft of dead ox fascia was inserted (fig. 7). Microscopically, there were dense scarred hyaline tissue and acellular fibrous tissue with no inflammatory cells.

On April 12, 1949, about nine years and three months after operation, examination revealed excellent function, with full extension of the thumb (fig. 8). She was not able to bring the thumb up to the level of the second metacarpal, but a muscle examination by the Kendalls disclosed this to be due to a tightness of the adductor pollicis and flexor pollicis brevis muscles rather than to a weakness of the extensor pollicis longus.

CASE 3.—F. S., a man aged 56, was first seen on March 4, 1949. On Nov. 28, 1945, he sustained a fracture of the lower end of his left radius. Roentgenographic examination revealed a nondisplaced fracture about 3 inches (7.6 cm.) above the

Fig. 9 (case 3).—Left wrist, Nov. 29, 1945. Nondisplaced fracture. Lower end of radius broadened and cystic.

wrist joint. The lower end of the radius was broadened and cystic (fig. 9). Healing of the fracture was apparently complete, as noted in roentgenograms taken on Jan. 12, 1946. He had no further trouble until Feb. 12, 1949, when he again fell and landed on the same hand. There were no demonstrable fractures, and there was no appreciable change in the bone lesion when compared with that in roentgenograms taken on Nov. 28, 1945. Thirty days after this second injury, he began to experience a feeling of soreness of the left thumb, and on the thirty-fifth day he was unable to use the thumb normally. It drooped as a whole, and there was inability to extend the distal phalanx (fig. 10).

At operation, on May 6, 1949, the distal end of the ruptured extensor pollicis longus was found to be tied down by adhesions to the lower border of the dorsal carpal ligament. The tendon end was slightly bulbous and indurated. The radial groove was smooth. The aproximal portion of the tendon could not be identified. Repair was accomplished by attaching the distal portion of the tendon to the extensor pollicis brevis tendon by a graft of dead ox fascia. The graft was held in the radial groove by the sutured dorsal carpal ligament (fig. 11).

It is too early to show the final results of this case. However, it was thought worth while to present it, as it portrays a typical clinical picture. It also demonstrates the gross and microscopic changes in the ruptured tendon and the method of repair.

STATISTICAL DATA

Latent Period.—In the cases compiled by Kwedar and Mitchell,[9] the average interval between the Colles fracture and the tendon rupture is six weeks. McMaster stated that the rupture occurs between the third week and the third month. In Smith's cases, the average lapse is twenty-nine days. In our series, the rupture occurred on the eighteenth, thirtieth and thirty-fifth days.

Incidence.—Pörsch,[14] Oppolzer[15] and Horowitz[16] cited an incidence of one rupture in 270 fractures. Smith noted an incidence of one in 280 cases.

Age.—The rupture may occur at any age, but it is most common after 30. The youngest age is reported by Lülsdorf[17]; in his case the rupture occurred in a 14 year old girl.

Fig. 10 (case 3).—Left hand prior to operation. Note drooping of thumb and loss of extension of distal phalanx.

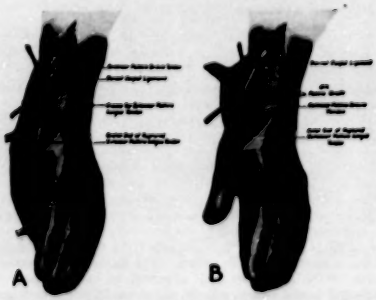

Fig. 11 (case 3).—Left hand. *A*, compartment for tendon opened. Radial groove is smooth. Proximal portion of tendon could not be identified. *B*, distal end of tendon sutured to extensor pollicis brevis tendon by a graft of preserved ox fascia. Oblique pull retained by placing graft in radial groove.

SUMMARY

1. Late subcutaneous rupture of the extensor pollicis longus tendon is an infrequent, but not rare, complication of Colles' fracture. It is apparently unpreventable, and the exact mechanism is not fully understood. Diagnosis is not difficult. Unless treated properly, there will be considerable dysfunction of the thumb. Treatment is surgical, and results, on the whole, are satisfactory. Various operative procedures may be employed. When end to end suture of the ruptured tendon was not possible, I have used a graft of dead ox fascia. The fascia should be rinsed in sterile sodium chloride solution and then soaked in another receptacle of the same solution for at least one hour, in order to prevent any undue reaction from the fixative agent.

1208 Eutaw Place.

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15. Oppolzer, R. R., Von: Spontanrupturen der Extensor pollicis Sehne (Freie Vereinigung der Chirurgen Wiens—Offizieller Bericht), Zentralbl. f. Chir. **61**:887, 1934.
16. Horowitz, A.: Die subcutane Spätruptur der Sehne des Extensor Pollicis Longus nach Radiusfraktur und anderen Knochenveränderungen in der nähe der Rissstelle, Deutsche Ztschr. f. Chir. **234**:710, 1931.
17. Lülsdorf, F.: Spätruptur der Sehne des Extensor Pollicis Longus, Ztschr. f. orthop. Chir. **51**:191, 1929.

ABSTRACT OF DISCUSSION

DR. HENRY F. ULLRICH, Baltimore: I should like to congratulate Dr. Weinberg on his clear, thorough and direct presentation of this unusual complication of Colles' fracture. Colles' fracture will always be common in human beings because we will always fall to the ground for various reasons. I wonder if Colles, in 1814, when he described this fracture entity that bears his name, knew that it would have such far-reaching importance as it has today. This complication again emphasizes the apparent fact that soft tissue damage is of the utmost importance and that we should keep in mind the soft tissues in addition to bony structures, even more after the fracture has been reduced than prior to reduction. Dr. Weinberg's cases did not show bony deformity as the prominent feature. I personally have not seen this complication or recognized it as such but have seen, as all of us have, traumatic synovitis of varying degree, which results in interference with function of the thumb after reduction and especially in the wrist fractures in which there is a moderate or severe degree of swelling after reduction and application of the cast. These have responded well to active exercises and other physiotherapeutic measures and required no operative treatment. I hope to reevaluate the wrist fractures at our clinic and suspect several late ruptures can be found in persons getting along with limitation of function who have not sought further treatment. It is interesting to note that many of these spontaneous ruptures occur between four and six weeks after fracture, which roughly corresponds to the time that the cast is removed and the institution of normal function with little restriction is commenced. It would seem that at this stage the tendons have little strength, and we should keep this in mind and prevent recurrence of this, as well as other complications.

DR. HERBERT C. FETT, Brooklyn: Dr. Weinberg's excellent presentation stimulated me to work out in my own mind how this interesting clinical entity could best be explained. Theoretically it has been felt that the condition has been the result of a partial tear from a sharp bone fragment or some interference with the circulation of a tendon. It was also felt that it might be due to fraying of the tendon by friction over the ridge of bone which is frequently left across the dorsum of the radius at the site of the fracture. I should like to ask Dr. Weinberg what he would think of the possibility of trauma to the tendon during the course of manipulative reduction. To my mind it is possible that this could be traumatized and result in subsequent spontaneous rupture. I can also easily visualize damage to the tendon in an incomplete reduction in which active motion of the thumb has been encouraged. As to treatment, it was noted in studying the anatomy involving the extensor pollicis longus that the muscular tendinous junction came down considerably toward the wrist joint, which, as I stated before, interferes to some extent with the lengthening process. End to end suture is very difficult in this type of case because of the marked fraying of the tendon. The proximity of the extensor carpi radialis apparatus to the distal end of the ruptured tendon recommends suture of the distal end of the pollicis tendon to this tendon.

DR. EDWIN DAVID WEINBERG, Baltimore: I want to thank Dr. Ullrich and Dr. Fett for their remarks. It is possible to injure this tendon while reducing the fracture. A sharp bone fragment may cause a partial laceration of the tendon, resulting in eventual rupture. In many cases there has been neither manipulation nor immobilization, as some of the fractures were incomplete and, in some instances, insignificant. In regard to operative procedure, no one has had sufficient experience to determine positively the best method of repair.

Clinical Notes, Suggestions and New Instruments

USE OF TANTALUM MESH TO REPAIR A LARGE SURGICAL DEFECT IN THE ANTERIOR ABDOMINAL WALL

R. A. BUSSABARGER, M.D.
M. L. DUMOUCHEL, M.D.
and
WILLIAM H. IVY, M.D.
Raymond, Wash.

Since Koontz[1] made his preliminary report on the use of tantalum mesh in the repair of ventral hernias, we have had occasion to use this material in the repair of 5 large ventral incisional hernias. The results in 4 cases were excellent. The fifth patient had five operations prior to repair with tantalum. There were several minor postoperative complications caused by cotton sutures and the avascularity of the skin as the result of the five previous operations, but the patient has had no recurrence of his ventral hernia.

It is now our policy to have a tantalum screen available for use in our operating room at all times. This policy enabled us to attempt a "Brunschwigian" resection rather than a palliative enterocolostomy in a case of adenocarcinoma of the cecum with extensive involvement of the anterior abdominal wall. In order to eradicate the invaded tissue it was necessary to resect the entire right lower half of the anterior abdominal wall, an elliptic area 7½ inches (19 cm.) in width by 6 inches (15 cm.) in length. This defect was closed with the aid of a tantalum mesh screen 3½ inches (9 cm.) in width by 5 inches (13 cm.) in length.

REPORT OF CASE

History.—F. M., a white man aged 60, was admitted to the New Riverview Hospital June 6, 1949 for relief of an intestinal obstruction caused by an advanced carcinoma of a double-barreled ileocecostomy protruding through a large ulcerated mass of tumor tissue invading and replacing his right lower abdominal wall. He complained of nausea, abdominal cramping, vomiting, extreme weakness and continuous foul, purulent drainage from the abscessed tumor tissue around his colostomy. No fecal matter had passed from his anus since the ileocolostomy done elsewhere May 2, 1948 for relief of intestinal obstruction. For a month after operation little fecal matter passed through his colostomy. Passage of fecal matter was associated with severe abdominal cramps.

Physical Examination.—The patient was pale and emaciated, weighing about 95 pounds (43.1 Kg.) (usual weight 147 pounds, 66.7 Kg.). Emaciation and generalized weakness was pronounced. The abdomen was distended, with tympanites and borborygmi. The temperature was 99.6 F., the pulse rate 98 and the blood pressure 100 systolic and 70 diastolic.

Laboratory Data.—The urine was normal. Examination of the blood showed 3,160,000 red blood cells, 8 Gm. hemoglobin, color index 0.9 and 15,750 white blood cells with 92 per cent polymorphonuclear leukocytes. The roentgenogram of the chest was negative. The blood was type O, Rh-negative.

Diagnosis.—Tentative diagnoses were (1) carcinoma of the cecum with contiguous involvement of the anterior abdominal wall, secondarily infected, with abscess formation and (2) incomplete intestinal obstruction.

The patient stated that the physicians attending him prior to this admission had advised him that he had a cancer of the large bowel that was too far advanced to be completely removed. His main concern was relief from his abdominal cramps and colostomy. He further stated that if he could have three months of life free from intestinal cramps and the foul draining colostomy he would be satisfied with the surgical result.

Operative Data.—The patient was prepared for surgical intervention with blood transfusions, phthalylsulfathiazole (sulfathalidine®) and other supportive measures. On June 14, 1949 continuous gastric suction was instituted prior to operation. Fractional spinal anesthesia was begun, and blood transfusions were started. An upper abdominal transverse incision was made. The small bowel immediately herniated through the incision. It was difficult to recognize because of the decided increase in the diameter and thickness of its wall. It was greatly distended with gas and liquid fecal matter.

Exploration revealed a smooth liver of normal appearance without evidence of metastasis or tumor extension. The gallbladder, duodenum, pancreas and stomach were normal. The colon beyond the cecum was collapsed and threadlike; the terminal ileum and cecum were matted together and fixed to the anterior abdominal wall in a tumor mass which did not extend intra-abdominally beyond its peritoneal covering. Several large glands were noted at the hilus of the mesentery of the ileum.

The terminal ileum, tumor mass and invaded abdomen, ascending colon and right half of the transverse colon were resected en masse, and an end to end ileocolostomy was performed. The line of excision began superiorly at the level of the transverse incision above the umbilicus, medially along the medial border of the left rectus muscle to the pubic bone, inferiorly across the inguinal ligament to the crest of the ilium and laterally from the crest of the ilium to a point just below the end of the twelfth rib. The left abdominal wall was pulled to the right 3 inches (7.6 cm.) without undue tension, and approximately two thirds of the transverse incision was closed. The peritoneum remaining in the right lower quadrant was eventually closed by following lines of least tension. All fascial edges that could be approximated to make the defect smaller were sutured with chromic 1. The remaining large defect of lost fascia and muscle, measuring 3½ by 5 inches (9 by 13 cm.), was closed with a single layer of tantalum gauze. The infolded edges of the gauze were sutured to the fascial edges with interrupted cotton 20. A large space between the peritoneal closure and the tantalum screen was noticed.

Skin closure was carried out with cotton 20. There was insufficient skin to cover the tantalum screen, so an area 3 by 4 inches (7.6 by 10 cm.) was left exposed. Long sutures were used to prevent the skin edges surrounding the defect from retracting. Sterile pressure dressings were applied to the entire abdomen.

The patient's immediate postoperative condition appeared the same as that preoperatively. During the five hour surgical session 1,500 cc. of whole blood had been administered.

Pathology Report.[2]—Macroscopic: The specimen consisted of a mass of tissue which included the skin, subcutaneous tissue, anterior abdominal wall and segments of large bowel. The large mass of tissue was covered on one surface by an elliptically shaped piece of skin 17 by 11 cm. In the center of this area protruded the colostomy opening. The opening was irregularly oval, 5 by 3 cm., and apparently was functioning. The edge of the colostomy was ulcerated and apparently made up of tumor tissue. The mass of tumor tissue had thickened the abdominal wall and comprised the bulk of the remaining mass, which measured 12 by 12 by 7 cm. On cut surface the tumor was necrotic and was a mottled, grayish yellow. The tumor in its manner of growth in the abdominal wall appeared to have replaced the muscle and fascial tissues and did not show definite invasiveness.

There was tumor in both segments of bowel removed with the piece of tissue, and it seemed probable that, as was described by the surgeon, the colostomy was made through the area of cancerous growth. The small intestine was not definitely identified grossly.

Microscopic: The sections of tumor in the abdominal wall appeared to be adequately removed. All sections made of the tumor mass were essentially alike. The mass consisted of large, atypical glands lined by anaplastic, columnar epithelium and supported by fibrous tissue stroma. These columnar cells varied greatly in size. The nuclei were hyperchromatic, and mitoses were present. Some glands were greatly distended by mucin. There was a heavy diffuse exudate of polymorphonuclear, lymphocytic and plasma cells in nearly all areas. Necrosis was noted in some areas. The lymph nodes showed hyperplasia and contained cellular debris.

Diagnosis: The diagnosis was adenocarcinoma, grade 2, secondarily infected, with chronic exudative lymphadenitis.

1. Koontz, A. R.: Preliminary Report on the Use of Tantalum Mesh in the Repair of Ventral Hernias, Ann. Surg. 127:1079 (May) 1948.

2. The report on tissue was prepared by Charles P. Larson, M.D., C.M., pathologist, Tacoma General Hospital.

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195

Postoperative Course.—Convalescence was rapid. By the first postoperative day, the peritoneum had stretched so that it was flush with the screen. Copious quantities of ascitic fluid necessitated several dressing reinforcements. Intestines floating in ascitic fluid could be seen through the screen. On the second day there was less drainage. Gastric suction was discontinued, and oral feedings begun. On the third day the bowels moved spontaneously. Serous drainage was moderate. On the fifth day the weight of the patient was 95 pounds (43 Kg.), and he was up in the chair. Foot drop due to his prolonged stay in bed was noticed for the first time. His appetite was good. The abdomen was soft, with normal peristaltic sounds. The intestines were less distended and edematous. By the tenth day he was walking with assistance.

Secondary Closure.—On the fourteenth day, with the patient under spinal anesthesia, the skin flaps were dissected free over the entire abdomen and sutured over the screen without apparent undue tension. No relaxing incisions were made. This proved to be a mistake in judgment, as subsequent events proved. At this operation it was noted that fibrous tissue was growing firmly into the screen from the skin edges. The skin over the screen was firmly adherent to it and was dissected free with difficulty.

Fig. 1.—Close-up of abdominal wall from right side one month after operation. Edge of screen is marked in ink. Transverse incision is 5½ inches (14 cm.) in length.

Subsequent Treatment and Course.—Twelve days after this secondary closure, dehiscence occurred and the skin edges retracted to the position they occupied prior to the secondary closure (fig. 1). The remainder of the patient's stay in the hospital was occupied with various procedures utilized in attempting to get skin over the tantalum screen (fig. 2). A full-thickness pedicle graft, raised from his right thigh and sewed back, became gangrenous in its distal half and had to be abandoned. The screen was eventually covered by tunneling the lateral skin, making a relaxing incision and moving the skin bridge over the screen. Later, split-thickness grafts were used to cover the resulting raw surfaces.

On August 19, 1949, the sixty-sixth postoperative day, the patient was discharged. His weight was 110 pounds (50 Kg.) (figs. 3 and 4). An area of screen about ¾ inch (1.9 cm.) in diameter remained exposed because of sloughing of the full-thickness graft over the upper right hand corner of the screen; however, granulation tissue was growing into the screen from the skin edges, and it was believed that this area would heal spontaneously. On September 6 the screen was completely covered. The patient weighed 115 pounds (52.1 Kg). On October 17, he weighed 125 pounds (56.7 Kg.) and was feeling fine.

Fig. 2

Fig. 3

Fig. 2.—One month after operation, weight 100 pounds (45.4 Kg.).
Fig. 3.—Two months after operation, weight 110 pounds (49.9 Kg.).

In retrospect, it is believed that complete primary closure of the abdomen with skin would have been accomplished in this patient if undercutting of skin flaps and relaxing incisions had been performed at his first operation.

Fig. 4.—Roentgenogram of colon two months after operation, showing screen and anastomosis.

CONCLUSION

Tantalum mesh may be used in the repair of large surgical defects of the full thickness of abdominal wall.

SUCCESSFUL REMOVAL OF A TUMOR EMBOLUS FROM THE FEMORAL ARTERY

LESTER BLUM, M.D.
New York

It is a characteristic of malignant disease that tumor emboli are of microscopic size. The rarity of massive neoplastic embolism has been emphasized by Till and Fairburn,[1] who recently described a fatal case of femoral artery obstruction with terminal gangrene. They stated that few such instances could be found in the literature. In 1940 Groth[2] reported the first successful removal of a malignant embolus from the femoral artery of a woman aged 37, who died one month later of disseminated sarcomatosis. The tumor process which originated in the other inferior extremity gained access to the left side of the circulation by pulmonary metastasis.

The case reported herein is the second recorded instance of successful removal of a malignant arterial embolus. Its interest is more than statistical, because the patient survived the operative procedure three months, at which time autopsy made clear the pathogenesis and afforded the rare opportunity of examining the site of arteriotomy.

REPORT OF CASE

J. E., a man aged 60, a Greek restaurant worker, was admitted to the Beekman-Downtown Hospital Dec. 11, 1947. He complained of an unproductive cough of three months' duration associated with a weight loss of 15 pounds (6.8 Kg.). Physical examination revealed essentially normal conditions except for flatness to percussion over the right side of the chest posteriorly, where the breath sounds were diminished as well. Bronchoscopy

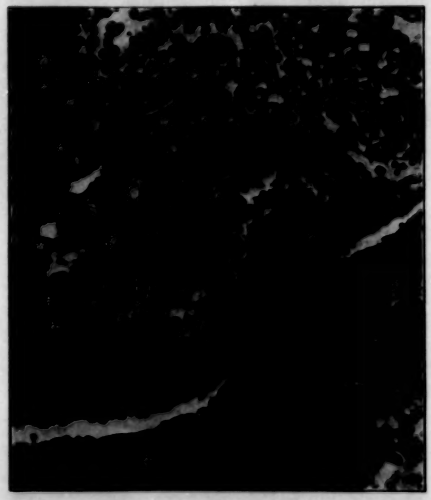


Fig. 1.—Section of tumor embolus.

revealed an irregular, friable 1 cm. mass located on the anteromesial wall of the right main bronchus. A few days thereafter, while awaiting the biopsy report, there was a sudden onset of severe epigastric pain and the patient went into a state of profound shock. The electrocardiographic tracing was normal, and, as the abdominal signs increased, an exploratory laparotomy was decided on. Abdominal tap in both lower quadrants resulted in the aspiration of serosanguineous fluid. Operation disclosed a peritoneal cavity full of blood from a spontaneous rupture of the spleen, which was removed. Neither at operation nor subsequent autopsy was the reason for this disclosed. Except for one episode of pulmonary edema and an infection in the upper angle of the wound, the patient did well

Fig. 2.—Section of femoral artery wall through site of arteriotomy (elastic tissue stain).

postoperatively. The biopsy report was positive for bronchogenic carcinoma.

His convalescence was dramatically interrupted one morning (Feb. 7, 1948) by the sudden onset of severe pain in the left leg, especially in the popliteal region. The pain persisted, became burning in nature and was accompanied with numbness of the foot and leg with complete loss of sensation. Examination disclosed a pallor of the left inferior extremity, which was cold below the midthigh region. The left external iliac artery could be palpated just above the inguinal ligament, but there were no pulsations below this point.

One member of the surgical staff suggested the correct diagnosis. He reasoned that, with a known carcinoma of the lung in the absence of evident cardiovascular disease, a tumor embolus was a logical possibility.

The operation was begun within two hours. Since it was believed that an embolus was lodged at the origin of the profunda femoris branch, a linear incision was made in the femoral triangle directly over the vessels. These were exposed, and the vein was separated from the femoral artery. This latter vessel was empty, pulseless and evidently in spasm. A fine rubber catheter was passed about it just below the profunda branch. A linear incision 2 cm. long was then made at this site into the vessel wall. The lumen was empty, with no evident propagated thrombus. A rubber suction tube was then passed proximally without result. A metal catheter was then similarly employed, with a resultant gush of 500 cc. of blood into the suction bottle. It was then evident that the blood flow had been fully restored and the obstruction removed. The rubber tourniquet about the artery was tightened, and 50 mg. of heparin was introduced peripherally. The wound in the vessel wall was repaired with one layer of continuous 0000 silk. The tourniquet was removed, and thereafter the artery pulsated normally. The skin edges were apposed with silk sutures.

From the Surgical Service of the Beekman-Downtown Hospital.

1. Till, A. S., and Fairburn, E. A.: Massive Neoplastic Embolism, Brit. J. Surg. 35:86 (July) 1947.
2. Groth, K. E.: Tumor Embolism of Common Femoral Artery Treated by Embolectomy and Heparin, Surgery 8:617 (Oct.) 1940.

The embolus was found in the midst of the blood clot in the suction bottle. It consisted of a 2 inch (5 cm.) square segment of crepitant organized tissue. On section it showed anaplastic cells resembling the palisading, oat-shaped forms characteristic of the biopsy from the bronchus. The differentiation was poor, and the cell growth was unrestricted, with a minimum of supporting stroma. Not all of the cells seemed viable (fig. 1).

The patient did well postoperatively. On the next morning the foot was warm to the toes, and ½ grain (0.03 Gm.) of papaverine injected intra-arterially just above the inguinal ligament resulted in a blush of the entire extremity with a subjective sensation of warmth. There was a decided hypersensitivity of the foot and leg. An anticoagulant regimen of heparin and dicumarol® was instituted. By the fourth day the patient was walking about in a sterile sock. By the fifth day the dorsalis pedis pulse had been restored. On the fourteenth day, the patient was transferred to another institution for further investigation. One month later he was readmitted because of a febrile episode. His condition was deemed inoperable, and finally, on April 11, 1948, two months after the embolectomy, he was readmitted in a moribund condition.

Autopsy performed by Dr. Gregory N. Brown revealed these salient points: (1) the presence of a bronchogenic carcinoma of the right main bronchus which had destroyed the right lung; (2) erosion of the ninth and tenth ribs on the right by tumor pressure; (3) metastasis to the regional lymph nodes; (4) a free tumor embolus in the left atrium, and (5) complete healing at the site of left femoral arteriotomy without evidence of constriction and regeneration of the intima without evident scar. Microscopically, the only evidence of repair was some heaping up of the subendothelial cells. Elastic tissue stain showed complete restitution of the architecture of the vessel wall despite the retained silk (figs. 1 and 2).

COMMENT

Aside from its rarity, this case demonstrates the completeness of recovery that can follow a promptly performed embolectomy. The absence of a propagated thrombus was significant in this respect and was probably related to the shortness of the interval between the lodgment of the embolus and its removal. The anatomic restitution of the vessel wall at the site of arteriotomy was to be expected in the absence of infection or arterial disease.

The treatment of obturation of the major arteries of the extremities is complex. Its usual occurrence as a late complication of chronic cardiovascular disease has encouraged a conservative attitude. Emphasis is placed on the poor general prognosis, and a result short of massive gangrene is considered satisfactory.

It is granted that embolic arterial occlusion in the superior extremity characteristically runs a benign course. The obstruction usually occurs in the brachial artery at the profunda branch or just above the elbow. There is no loss of function, and the transient pallor and numbness of the hand disappear in a few days. Where tissue death ensues, the case is likely to be one of multiple, repeated embolization in a moribund patient.

There are, however, cases of arterial occlusion in the inferior extremities of comparatively young patients with rheumatic or coronary artery disease. When the physical signs in the foot and leg are conclusive and massive tissue death seems probable, the weight of responsibility rests on the advocate of nonsurgical measures. The high incidence of incomplete or small vessel embolization in the inferior extremity with minimal signs and prompt response to the popular anticoagulation regimen has led to the adoption of a conservative attitude in all cases. It is not customary to publish unfavorable results, and amputations following a nonoperative policy are accepted as inevitable.

In a patient whose general condition is not bad and whose inferior extremity shows the signs of complete femoral or popliteal artery embolism with loss of sensation, loss of toe movement, blotchy pallor, coldness and absent oscillations, the treatment should be surgical and promptly so. The amount of time actually elapsing between the occurrence and removal of the embolus is a major factor in the outcome.

SUMMARY

The second recorded instance of successful removal of a malignant embolus of the femoral artery is reported. A plea is made for the prompt operative care of patients with embolic occlusion of the femoral and popliteal arteries.

910 Park Avenue.

CONGENITAL ABSENCE OF THE VAGINA WITH ACCOMPANYING SOLITARY PELVIC KIDNEY

Case Report

WALTER A. KEITZER, M.D.
and
EDWIN A. RIEMENSCHNEIDER, M.D.
Akron, Ohio

The comparative rarity of solitary pelvic (ectopic) kidney warrants the reporting of each case. A total of 44 cases have been described in the literature to date. The latest reports are those of Nalle, Crowell and Lynch [1] and Cokely and Webster.[2] Included among these 44 patients are many with an associated genital anomaly and, more particularly, 11 showing congenital absence of the vagina in combination with solitary pelvic kidney.

The present report is not being undertaken solely because of the rarity of the findings. Because of the ever increasing popularity and successful performance of surgical procedures resulting in a functional vagina, these are often undertaken without preoperative study of the urinary tract. The close embryologic associations of the genital and urinary systems predict the appearance of combinations of aberrations.

Roentgenogram showing small kidney, normal calices and well outlined pelvis.

A majority of the reports which stress the close relationship of solitary pelvic kidney and some cases of vaginal aplasia appear in the urologic literature. They are thus not usually presented to the surgical group, who undoubtedly attempt the majority of the plastic operations on patients showing congenital absence of the vagina. As noted by Nalle and others,[1]

1. Nalle, B. C., Jr., Crowell, J. A., and Lynch, R. M., Jr.: Solitary Pelvic Kidney with Vaginal Aplasia, J. Urol. 61: 862, 1949.
2. Cokely, H. J., and Webster, R. N.: Solitary Pelvic Ectopic Kidney, U. S. Nav. M. Bull. 49: 333, 1949.

"In the absence of vagina and uterus, a pelvic kidney can easily be mistaken for the uterus and unnecessary or dangerous procedures attempted." This statement is especially true when a solitary pelvic kidney is involved.

CASE REPORT

Mrs. E. S., a 28 year old housewife, was first seen in August 1948, complaining of dyspareunia, complete absence of the menses, recurrent pain in the breast and the lower abdominal area and heaviness appearing at approximately twenty-eight day intervals. Libido was normal, and she had been married three years. In 1945 she had consulted another physician, who had utilized the Wharton technic to enlarge a small dimple occupying the usual position of the vagina into a blind pouch approximately 1½ inches (3.8 cm.) in length.

The patient's history was otherwise apparently normal. Physical examination revealed a well developed and well nourished white woman. She presented normally developed secondary sex characteristics, well developed breasts and female hair distribution. The external genitalia were normally constituted, and the position of the vagina was occupied by a short blind pouch. On bimanual examination a rather large solid mass was palpated just beyond the end of the pouch.

Urologic examination revealed a normal urine. The urethra was normal in caliber. A no. 24 French panendoscope was inserted into the bladder without difficulty. There was absence of the left half of the trigone and a considerable amount of granulation in the neck of the bladder and over the right portion of the trigone. A no. 5 ureteral catheter was placed in the right ureter, where an obstruction was met at a distance of about 10 cm. There was no residual urine from the right kidney. The urine from the right ureter was normal on analysis. Retrograde pyelograms were made, a moderate amount of pain being produced with the injection of 5 cc. of sodium iodomethamate (neo-iopax solution®). The pyelograms showed no evidence of stones. The kidney was somewhat small, the calices were normal in appearance and the pelvis fairly well outlined (figure). The diagnosis was solitary, ectopic, pelvic kidney, with absence of the left trigone. Intravenous pyelograms confirmed this diagnosis.

It was felt that the further use of surgical measures in this case was contraindicated by the findings. The vaginal pouch has been enlarged and the dyspareunia lessened by the use of repeated vaginal packs.

SUMMARY

1. A case of congenital absence of the vagina with accompanying single solitary pelvic kidney is reported. This brings the reported cases of this combination of anomalies to 12 and the cases of solitary pelvic kidney to 44.

2. The performance of an operation to create an artificial vagina should be preceded by a thorough study of the genitourinary tract to rule out the presence of any complicating anomalies.

612 Second National Building.
1000 Second National Building.

SPONTANEOUS SUBARACHNOID HEMORRHAGE

Present Status of Diagnosis and Surgical Treatment

E. F. HURTEAU, M.D.
Akron, Ohio

Rapid strides have been made in arteriography and the surgical therapy of subarachnoid hemorrhage due to rupture of intracranial vascular anomalies. Although publications describing these procedures are abundant,[1] they are undoubtedly unfamiliar to many who are the first and often the only persons bearing the responsibility for treating patients with signs and symptoms of spontaneous subarachnoid hemorrhage. The case herein described is typical and serves to illustrate an acceptable method of handling these lesions.

1. (a) Dandy, W. E.: Intracranial Arterial Aneurysms, Ithaca, N. Y., Comstock Publishing Company, Inc., 1944. (b) Pilcher, C.: Angiomatous Malformation of the Brain, Ann. Surgery 123:766, 1946. Raney, R.; Raney, A., and Sanchez-Perez, J. M.: Role of Complete Cerebral Angiography in Neurosurgery, J. Neurosurg. 6:222, 1949. Schwartz, H. G.: Arterial Aneurysm of the Posterior Fossa, J. Neurosurg. 5:312, 1948.

REPORT OF A CASE

The patient was a 43 year old nurse, actively engaged in her profession. She denied any symptoms referable to the head previous to April 18, 1949. On this date she experienced a sudden, severe right frontal headache and stiffness of the neck.

Examination.—Examination a few hours after the onset of the headache revealed that the patient had excruciating right frontal pain. There was some cervical rigidity and a positive reaction to Kernig's test. There were no positive neurologic signs to aid in lateralizing or localizing the lesion.

A spinal puncture made on admission revealed grossly bloody cerebrospinal fluid. Other laboratory tests were noncontributory.

A Matas' test was made by digital compression of the right carotid artery in the neck for ten minutes. After a few seconds of occlusion the patient was almost completely relieved of her headache. After ten minutes of compression there were no signs of cerebral ischemia. Immediately on release of the digital pressure there was a recurrence of the right frontal headache. This procedure was repeated several times, and each time relief of headache was obtained. Compression of the left carotid artery had no appreciable effect on the headache. This observation was regarded as a lateralizing sign and as an indication that occlusion of the carotid artery in the neck relieved pulse pressure on the aneurysm to some degree.

Operation.—On April 20, with thiopental sodium and local anesthesia, the right common carotid artery was exposed and an arteriogram was made, with 35 per cent iodopyracet injection. This showed a saccular aneurysm involving the right anterior cerebral artery (figure, *A*). The right common carotid artery was then occluded with a large tantalum clip, and the patient

A, cerebral arteriogram showing aneurysm (arrow). *B*, roentgenogram showing clips occluding neck of aneurysm.

was allowed to awaken from her light thiopental sodium anesthesia with the artery exposed. After an interval of twenty minutes she was able to move the contralateral leg and arm well. The wound in the neck was then closed. The postoperative course was uneventful. She had mild right frontal headache on sitting up and slight vertigo on change of posture.

On April 29 a right transfrontal exploration of the circle of Willis was performed. Preoperative preparation included insertion of a spinal puncture needle and continuous spinal fluid drainage during the procedure. Two complete suction apparatuses were made available. Special silver clips, about 1 mm. larger than those routinely supplied, were prepared. Local and light thiopental sodium anesthesia was used. On exposure of the right anterior cerebral artery, the aneurysm was encountered and was found to be communicating with the anterior cerebral artery by a small neck just distal to the anterior communicating artery. The size of the aneurysm was estimated to be approximately one-half the size indicated by arteriographic examination. This decrease in size was presumably due to decrease of intra-arterial pressure following occlusion of the common carotid artery in the neck nine days previously. As the vertex of the sac was being dissected away from the arachnoid of the cisterna chiasmatis, a well formed clot was seen protruding through the wall of the sac. This clot was inadvertently brushed with the sucker. Sudden expulsion of the clot and profuse hemorrhage ensued. There was excellent visualization of the sac and its neck, in spite of the continuing hemorrhage. A long silver clip which was intended for the neck of the sac was inadvertently applied first

to the vertex of the sac. This resulted in a tear and an even more profuse hemorrhage. A second clip was applied directly across the neck of the sac (figure, *B*). Immediately all bleeding completely subsided. A piece of gelfoam[9] (absorbable gelatin sponge) was placed within the sac through the tear. The anterior cerebral artery was not occluded. The craniotomy was closed in a routine manner.

Course.—The postoperative course was uneventful. There was no evidence of cerebral ischemia or of impingement on the optic nerves or chiasm.

The patient was last seen on October 8 and was symptom free and again actively engaged in nursing.

COMMENT

The over-all mortality among patients with spontaneous subarachnoid hemorrhage due to rupture of an aneurysm approached 100 per cent with therapy available prior to the advent of surgical intervention. When this condition is treated surgically, the over-all mortality rate is 25 per cent[1a] to 36 per cent. There is thus no justification for one's withholding operation from these patients unless one feels with certainty that the general condition of a given patient would preclude survival or that ligation procedures would result in hemiplegia.

The value of ligation of the carotid artery in the neck is debatable. It is my feeling that this case substantiates Sweet's observations.[2] In his experimental animals there was a decrease in pulse pressure of 25 per cent and a decrease in systolic presure of 50 per cent in the internal carotid artery distal to ligation in the neck, and he postulated a corresponding, though possibly less pronounced, fall of pressure in the vessels of the circle of Willis. Some relief of pulse pressure on this aneurysm resulted from neck ligation alone, as manifested by the relief of headaches and bleeding and the decrease in the size of the aneurysm sac following this procedure. Since this relief occurred with such a peripherally placed aneurysm (anterior cerebral artery distal to the anterior communicating artery), one might expect an even greater benefit to be derived from carotid artery ligation in the neck in those more proximally placed aneurysms (internal carotid artery proximal to or near its bifurcation). It is also noteworthy that in this case the aneurysm was inadvertently ruptured during its exposure. If Sweet's observations apply, one might reason that this case might have terminated in death at operation had the carotid artery not been occluded in the neck. Suction permitted keeping up with the rate of blood flow sufficiently to allow the operator enough visualization to apply a hemostatic clip to the neck of the aneurysm sac. It is the opinion of most neurosurgeons, however, that any benefit derived from ligation of the carotid artery in the neck will be a transient one and that, when feasible, the lesion should be attacked directly.

The proper time for arteriographic examination following subarachnoid hemorrhage is also debatable. There is a plan now to organize a central society which would compile information about aneurysms, so that individual experiences could be pooled and more accurate conclusions drawn. Undoubtedly, there will soon be satisfactory information, and even more effective methods will be adopted as a result of these activities.

SUMMARY

A case of spontaneous subarachnoid hemorrhage due to rupture of a congenital aneurysm is described in detail. Although not unique, the case illustrates what may be accomplished when patients with these lesions are treated surgically at the proper time. Skilful, watchful procrastination may still be useful in determining the proper time to instigate surgical procedures. Fortunately, however, the advent of cerebral arteriography and newer neurosurgical technics have antiquated symptomatic treatment per se and have considerably changed the prognosis in these cases.

2. Sweet, W. N., and Bennett, H. S.: Changes in Internal Carotid Pressure During Carotid and Jugular Occlusion and Their Clinical Significance, J. Neurosurg. 5:178, 1948.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

R. T. STORMONT, M.D., *Secretary.*

COMMITTEE ON PESTICIDES

The Council on Pharmacy and Chemistry recently authorized the formation of a Committee on Pesticides to study the health problems associated with the use of insecticides, fungicides, rodenticides, herbicides and other types of economic poisons. This action was a natural outgrowth of the Council's interest in toxicologic problems.

The necessity for long range positive action in the field of economic poisons has been apparent for some time. The Council office for several years has devoted considerable attention to the collection of information and the consideration of problems associated with pesticides. In conjunction with other scientific groups within the Association, the Council has offered its assistance to government agencies, industrial concerns and private interests. This assistance frequently consisted merely of information concerning medical problems which arose from the increasing use of pesticidal chemicals. In other instances, however, the Council collaborated directly in efforts which were in the public interest. Examples of such collaborative efforts are the Conference on Health Hazards of Pesticides held at American Medical Association headquarters Nov. 3, 1948 and the exploratory meeting of the Committee on Pesticides, Oct. 26, 1949, both sponsored jointly with the Council on Foods and Nutrition.

It was apparent from these meetings that much has yet to be learned about the uses and limitations of pesticides. It was equally apparent, however, that it is necessary to integrate the existent information so that it may become available to physicians and others. To fill this gap and to provide this service, the Committee on Pesticides has been projected.

The Committee will promote the coordination of medical activities concerned with pesticides and offer guidance to physicians and other practitioners of the medical sciences in the many difficulties which these agents present. To implement these aims, the following projects will be undertaken initially:

1. *Promote Safe Standards for Use.*—The development of safety standards is one of the most urgent problems surrounding the use of pesticides. New methods and new fields of application, and more frequent use by untrained persons have increased the need for definition of the immediate and long term hazards to those who work with pesticides or consume products to which they have been applied. Unfortunately, no general rules will cover every contingency of individual use; safety standards therefore have to be adapted to each particular use and pesticide formulation. The patterns for the safe handling of many of these materials have been outlined in experimental work and in experience with related compounds in other fields. The Committee will publicize and promote the application of these observations.

2. *Foster the Development of Antidotal Measures.*—The accumulated knowledge of the entomologic efficiency of pesticides far outweighs the data on toxicity. Specific antidotal and treatment measures for many of the newer economic poisons are sorely needed, and increased emphasis on this phase of product development is required. The various scientific groups of the American Medical Association have had considerable experience with similar problems in other fields. Their knowledge and facilities will be available through the Committee to all groups interested in this subject.

3. *Stimulate Voluntary Control.*—Before resort to other measures, the many possibilities of voluntary regulation should be studied and exhausted. The effectiveness of this type of control is largely determined by the cooperation of all groups in the common task. The Committee will bring health problems to the attention of industry, suggest possible methods for their solution and lend its resources to similar undertakings which are in the public interest.

4. *Assist in the Standardization of Nomenclature.*—The profusion of trade names, initials and numbers for pesticides contributes to misuse and errors in the handling of these preparations. The coining of common or generic names for pesticides is a recent and commendable innovation in this field. The many years' experience of the Council on Pharmacy and Chemistry in the development of generic names for drugs is at the disposal of the Committee in the parallel problem of nomenclature of pesticides.

5. *Accumulate and Evaluate New Information.*—A number of groups representing widely diversified interests have proposed to undertake a compilation of the available toxicologic data on pesticides. It is the intention of the Committee not to supplant these efforts but rather to integrate and supplement the work of others in areas in which the Committee is best equipped to conduct studies. The organizational difficulties involved in the compilation, integration and appraisal of existent information are of such magnitude and importance that the combined efforts of all groups are required to solve them.

6. *Undertake an Intensive Educational Program.*—Information on the usefulness and limitations of pesticidal agents will be disseminated initially to those audiences most accessible to the Committee. The educational facilities of the American Medical Association, consisting of ten professional journals, the lay publication *Today's Health*, the Bureaus of Health Education and Exhibits and those outside publication sources which follow the Association's leadership in health matters will be available to the Committee. The Committee will seek the active cooperation and assistance of all branches of science and industry in this and other aspects of its program. In turn, the assistance of the Committee will be available to all.

The members of the Committee are:

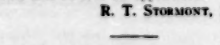
Herbert K. Abbas, M.D., Chief, Bureau of Adult Health, California Department of Public Health, Berkeley, Calif.
E. M. K. Geiling, M.D., Professor of Pharmacology, University of Chicago, Chicago.
Albert Hartzell, Ph.D., Head Entomologist, Boyce Thompson Institute for Plant Research, Yonkers, N. Y.
Culver S. Lapp, B.Sc., Council on Foods and Nutrition, Silver Spring, Md.
Arnold J. Lehman, M.D., Chief, Division of Pharmacology, Food and Drug Administration, Washington, D. C.
S. A. Rohwer, D.Sc., Assistant Chief, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D. C.
S. W. Simmons, Ph.D., Scientist Director, Chief, Technical Development Services, Communicable Disease Center, United States Public Health Service, Savannah, Ga.
Justus C. Ward, M.Sc., Chief, Pharmacology and Rodenticide Section, Insecticide Division, United States Department of Agriculture; Chairman, Committee on Toxicity and Antidotes, Association of Economic Poisons Control Officials, Washington 25, D. C.
Torald Sollmann, M.D., Chairman of the Committee, Cleveland.
Bernard E. Conley, R.Ph., Secretary of the Committee, Chicago.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. Stormont, M.D., *Secretary.*

DIGLYCOCOLL HYDROIODIDE-IODINE.—Bursoline (Burnham Soluble Iodine Co.).—Two moles of diglycocoll hydroiodide combined with two atomic weights of iodine. It contains 30.5 to 32.0 per cent of active iodine. The formula of diglycocoll hydroiodide-iodine may be represented as follows:



Actions and Uses.—Diglycocoll hydroiodide-iodine is a preparation used in the form of tablets to provide a convenient source of readily soluble iodine for the disinfection of drinking waters. Amounts of the preparation sufficient for disinfection of water are well below the toxic level. They produce a slight iodine taste and color which are reasonably tolerable. Its advantage over simple iodine solutions for the disinfection of water is its dry, stable form which permits it to be carried more conveniently. The effect of diglycocoll hydroiodide-iodine on such a virus as epidemic hepatitis virus, which is infrequently found in drinking water, is not known.

Dosage.—Diglycocoll hydroiodide-iodine is supplied only in the form of tablets, each of which contains 16.4 mg. of total iodine and provides an average titratable iodine concentration of 7.4 ppm. when added to one liter of water. One tablet per liter reduces *E. coli*, *E. typhosa*, *S. dysenteriae* and *S. schottmulleri* from concentrations of about 50×10^6 to 100×10^6 per 100 cc., to an average of 1 to 5 organisms per 100 cc. (most probable number) at 25 C. in normal, slightly polluted alkaline, turbid and cold (7 C.) waters. One tablet per liter is cysticidal at 23 C. within 5 minutes in normal waters; in moderately polluted, alkaline and turbid waters, within ten minutes; and in cold water (5 C.), within 20 minutes. To disinfect waters rich in leaf extract, two tablets should be used per liter of water. The highest iodine demands are not associated with water containing organic nitrogen, such as sewage, but with waters in which there is much decomposed vegetable matter. The iodine demand of waters is less in acid than in basic solutions and it appears to be equal to or less than the chlorine demand.

The tablets should be protected against moisture from the air, but are otherwise stable and maintain effectiveness for three months even under conditions involving a temperature of 140 F.

Water on the lips of containers in which disinfection is carried out does not come in contact with the iodine or form a part of the measured portion being disinfected; therefore, these should not be used as drinking receptacles until the treated portion has been allowed to run across such areas to eliminate all untreated water.

Tests and Standards.—

Physical Properties: Diglycocoll hydroiodide-iodine is a dark, almost black, lumpy powder with a strong odor of iodine. It is freely soluble in water and practically insoluble in chloroform. Although it is only very slightly soluble in alcohol, the iodine component is soluble. The *pH* of a 0.1 per cent solution of diglycocoll hydroiodide-iodine in water is approximately 3.0.

Assay: Accurately weigh approximately 0.2 Gm. of diglycocoll hydroiodide-iodine into a suitable Kjeldahl flask and determine the nitrogen content by the Kjeldahl method, using 1 Gm. of a mixture of 1 part of cupric sulfate and 10 parts of potassium sulfate as the catalyst: the amount of nitrogen found is not less than 6.82 nor more than 7.02 per cent.

Accurately weigh approximately 0.3 Gm. of diglycocoll hydroiodide-iodine into a suitable flask. Add 50 ml. of water, 2 ml. of diluted sulfuric acid and 0.3 Gm. of potassium iodide. Titrate with 0.1 *N* sodium thiosulfate using starch T.S. as an indicator. Each ml of 0.1 *N* sodium thiosulfate is equivalent to 0.01269 Gm. of titratable iodine: the titratable iodine found is not less than 30.5 nor more than 32.0 per cent.

Accurately weigh approximately 1 Gm. of diglycocoll hydroiodide-iodine into a suitable flask and pipet into the flask exactly 20 ml. of 0.05 *M* potassium iodate solution. Add 25 ml. of diluted sulfuric acid and a boiling stone and boil the solution to remove the free iodine. Cool the flask, add 1 Gm. of potassium iodide and titrate with 0.1 *N* sodium thiosulfate using starch T.S. as an indicator: the iodine present as iodide is not less than 30.5 nor more than 32.0 per cent.

Diglycocoll Hydroiodide-Iodine Tablets: Dissolve 20 tablets in 50 ml. of water and proceed as described in the assay for titratable iodine in the monograph for diglycocoll hydroiodide-iodine starting with ". . . 2 ml. of diluted sulfuric acid. . . ." The titratable iodine found is not less than 94 nor more than 106 per cent of the labeled amount.

Burnham Soluble Iodine Company, Auburndale 66, Mass.

Tablets Bursoline: Each tablet contains 8.2 mg. of iodine, 18.0 mg. of diglycine hydroiodide and 88.8 mg. of sodium acid pyrophosphate.

U. S. trademark 422,297.

CHLORIODIZED OIL.—Iodochlorol (Seable).—A product of the addition of iodine monochloride to peanut oil. It contains 26.5 to 28.5 per cent of iodine in organic combination.

Actions and Uses.—Chloriodized oil is employed as a radiopaque agent for instillation into hollow structures to aid in roentgenographic diagnosis. It is recommended for use in visualization of the accessory nasal sinuses, bronchial tract, fallopian tubes, uterus, genitourinary tract, empyemic cavities, soft tissue sinuses and fistulas.

Chloriodized oil, because of its iodine content, should be employed with caution in patients with pulmonary tuberculosis, active or latent hyperthyroidism and possibly some patients with thyroid adenoma.

Dosage.—The dose varies with the capacity of the structure to be examined. It ranges from 1 to 2 cc. for small sinuses and fistulas to 20 cc. in the paranasal sinuses and bronchial tract.

Tests and Standards.—

Physical Properties: Chloriodized oil is a pale yellow, viscous, oily liquid with a faint, bland odor. It is practically insoluble in water, slightly soluble in alcohol and freely soluble in benzene, chloroform and ether. Its refractive index at 25 C. is about 1.505 and its specific gravity (25/25) is about 1.260.

Identity Tests: Heat a few drops of chloriodized oil in a platinum dish: the liquid turns brown and then gives off violet vapors (*presence of iodine*).

Purity Tests: Ignite about 1 Gm. of chloriodized oil, accurately weighed: the residue is not more than 0.1 per cent.

Assay: Accurately weigh about 0.3 Gm. of chloriodized oil in a small tared glass weighing cup. Transfer the cup and oil to a pressure bottle

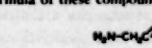
and add 20 ml. of 30 per cent methanolic potassium hydroxide. Wrap the bottle in a piece of wire screening and place it in a water bath at about 55 C. Bring the bath to boiling and continue heating for 1.5 hours. Remove the bottle from the bath and allow it to cool for at least 1 hour. Add about 20 ml. of water to the hydrolyzed sample and transfer it to a 250 ml. separatory funnel. Rinse the bottle twice with water and add the washings to the funnel. Chill the funnel and contents, and add 30 ml. of hydrochloric acid. Again cool the mixture and extract twice with 15 ml. of chloroform, taking care not to lose any of the aqueous layer. Add 12 ml. of chloroform and titrate with 0.1 *N* potassium iodate to a colorless endpoint in the chloroform layer. Each ml. of 0.1 *N* potassium iodate is equivalent to 0.00423 Gm. of iodine (I). The iodine content is not less than 26.5 nor more than 28.5 per cent.

G. D. SEARLE & CO., INC., CHICAGO 80.

Iodochlorol: 20 cc. bottles: A peanut oil containing 27 per cent of iodine and 7.5 per cent of chlorine in organic combination.

U. S. trademark 365,991.

GLYCINE AND CALCIUM CARBONATE.—Titralac (SCHENLEY).—$C_2H_5NO_2$.—M.W. 75.068.—$CaCO_3$.—M.W. 100.09.—A mixture containing 0.15 Gm. of aminoacetic acid-N.F. and 0.35 Gm. of calcium carbonate-U. S. P. in each tablet. The formula of these compounds may be represented as follows:



Actions and Uses.—Glycine and calcium carbonate in the proportions of 30 per cent and 70 per cent, respectively, produce an acid neutralization curve simulating that of whole milk. The combination is used as a gastric antacid for the control of symptomatic hyperacidity and of peptic ulcer. The rapid buffering action of glycine is supplemented by the more sustained alkalinizing effect of calcium carbonate. The combination does not produce the acid "rebound" phenomenon nor the systemic alkalosis frequently attributed to the use of alkalis alone. It may be particularly suited for use as a source of calcium in patients unable to take milk, but its buffering action is in no way superior to that which might be achieved with a modified Sippy diet. The only claim recognized for the effect of glycine is that it has acid buffering action in the mixture.

Dosage.—Glycine and calcium carbonate is administered orally in tablets each containing 0.15 Gm. of glycine and 0.35 Gm. of calcium carbonate. One such tablet provides, within 12 minutes, acid neutralization equivalent to that of 250 cc. of milk. For symptomatic gastric hyperacidity, 1 or 2 tablets chewed or swallowed with water after meals or as needed. As an aid in the management of peptic ulcer, 1 or 2 tablets similarly at hourly intervals until symptoms are brought under control.

Tests and Standards.—

GLYCINE AND CALCIUM CARBONATE TABLETS:

Identity Tests: Disintegrate 2 tablets of glycine and calcium carbonate in 10 ml. of water and add 5 ml. of acetic acid. Bubble the gas evolved through 5 ml. of calcium chloride T.S.: a white precipitate forms (*presence of carbonate*).

Filter the acid solution from the carbonate test and neutralize the solution to litmus with a strong ammonia solution. Boil off the excess ammonia, then add to the hot solution 5 ml. of ammonium oxalate T.S. Filter and transfer a small amount of the white precipitate to a clean platinum wire and heat in a colorless flame. A transient yellow-red color is imparted to the flame. The white precipitate is insoluble in acetic acid and dissolves in hydrochloric acid (*presence of calcium*).

Add 25 ml. of water to 6 tablets of glycine and calcium carbonate, allow them to disintegrate, agitate the mixture and filter. To 5 ml. of the filtrate add 5 drops of diluted hydrochloric acid and 5 drops of a 1; 2 aqueous solution of sodium nitrite: a gas is evolved (*presence of glycine*).

Add 1 ml. of ferric chloride T.S. to 2 ml. of filtrate: a deep wine color develops which disappears on acidification with diluted hydrochloric acid and reappears on the addition of an excess of strong ammonia solution (*presence of glycine*).

Add 1 drop of liquefied phenol and 5 ml. of sodium hypochlorite T.S. to 2 ml. of the filtrate: a blue color develops slowly (*presence of glycine*).

Assay: Accurately weight at least 20 tablets of glycine and calcium carbonate, grind them to a fine powder and store the powder in a closed bottle.

Accurately weigh the equivalent of 5 tablets of glycine and calcium carbonate and transfer to a 500 ml. volumetric flask and add 15 ml. of diluted hydrochloric acid. After dissolution and gas evolution are complete, dilute to the mark with water. Filter the solution, discarding the first 20 ml. of filtrate. Pipet 50 ml. of the filtrate to a 400 ml. beaker and proceed as directed in U. S. P. XIII, page 93, under the assay for Calcium Carbonate. The calcium carbonate content is not less than 93 nor more than 105 per cent of the claimed amount.

Accurately weigh out the equivalent of 1 tablet of glycine and calcium carbonate and determine the total nitrogen by the Kjeldahl Method (U.S.P. XIII, page 671). Each ml. of 0.1 *N* sulfuric or hydrochloric acid consumed is equivalent to 0.007508 Gm. of glycine: the glycine present is not less than 93 nor more than 105 per cent of the claimed amount.

SCHENLEY LABORATORIES, INC., NEW YORK 1.

Tablets Titralac: Each tablet contains 0.15 Gm. of glycine and 0.35 Gm. of calcium carbonate.

U. S. patent 2,429,596.

Council on Foods and Nutrition

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

The Gerber Products Company, Fremont, Mich.

GERBER'S CHOCOLATE FLAVORED CUSTARD PUDDING consists of whole milk solids, sugar, whole eggs, arrowroot, white flour, cornstarch, cocoa, salt and water.

Analysis (submitted by manufacturer).—Total solids 21.62%, moisture 78.38%, ash 0.91%, fat (acid hydrolysis) 2.73%, protein (N × 6.25) 3.24%, crude fiber 0.09%, carbohydrates other than crude fiber (by difference) 14.65%.

Calories.—0.96 per gram; 27.19 per ounce.

Vitamins and Minerals	*Per Hundred Grams*
Vitamin A	120 U.S.P. Units
Thiamine	0.026 mg.
Riboflavin	0.150 mg.
Ascorbic acid	1.21 mg.
Niacin	0.099 mg.
Calcium	84.8 mg.
Phosphorus	75.5 mg.
Iron	0.29 mg.

Use.—For use in the feeding of infants, convalescents, and others requiring a soft diet.

GERBER'S STRAINED SOUP—VEGETABLES AND BACON consists of peas, potatoes, bacon, rice flour, salt, dried yeast, celery powder and onion powder.

Analysis (submitted by manufacturer).—Total solids 16.80%, moisture 83.20%, ash 0.88%, fat (ether extract) 3.63%, protein (N × 6.25) 2.27%, crude fiber 0.24%, carbohydrates other than crude fiber (by difference) 9.78%.

Calories.—0.81 per gram; 22.92 per ounce.

Vitamins and Minerals	*Per Hundred Grams*
Vitamin A	117 U.S.P. Units
Thiamine	0.139 mg.
Riboflavin	0.054 mg.
Ascorbic acid	1.79 mg.
Niacin	1.25 mg.
Calcium	10.0 mg.
Phosphorus	38.4 mg.
Iron	0.35 mg.

Use.—For use in the feeding of infants, convalescents, and others requiring a soft diet.

GERBER'S STRAINED SQUASH consists of squash with approximately 0.5% salt in sufficient water to prepare properly.

Analysis (submitted by manufacturer).—Total solids 9.00%, moisture 91.00%, ash 0.79%, fat (ether extract) 0.21%, protein (N × 6.25) 0.67%, crude fiber 0.75%, carbohydrates other than crude fiber (by difference) 6.58%.

Calories.—0.31 per gram; 8.75 per ounce.

Vitamins and Minerals	*Per Hundred Grams*
Vitamin A	168.1 U.S.P. Units
Thiamine	0.025 mg.
Riboflavin	0.033 mg.
Ascorbic acid	6.21 mg.
Niacin	0.48 mg.
Calcium	23.6 mg.
Phosphorus	20.0 mg.
Iron	0.23 mg.

Use.—For use in the feeding of infants, convalescents and others requiring a soft diet.

GERBER'S STRAINED SWEET POTATOES consist of sweet potatoes, salt and water to prepare.

Analysis (submitted by manufacturer).—Total solids 17.64%, ash 0.82%, protein 0.55%, fat 0.09%, crude fiber 0.36%, carbohydrates other than crude fiber (by difference) 15.42%.

Calories.—0.66 per gram; 18.79 per ounce.

Vitamins and Minerals	*Per Hundred Grams*
Vitamin A	2450 U.S.P. Units
Thiamine	0.037 mg.
Riboflavin	0.025 mg.
Ascorbic acid	9.70 mg.
Niacin	0.32 mg.
Calcium	13.5 mg.
Phosphorus	29.2 mg.
Iron	2.04 mg.

Use.—For use in the feeding of infants, convalescents, and others requiring a soft diet.

GERBER'S JUNIOR CHOPPED SQUASH consists of chopped squash with approximately 0.75% salt in sufficient water to prepare properly.

Analysis (submitted by manufacturer).—Total solids 9.92%, moisture 90.08%, ash 1.19%, fat (ether extract) 0.20%, protein (N × 6.25) 0.87%, crude fiber 1.05%, carbohydrates other than crude fiber (by difference) 6.62%.

Calories.—0.32 per gram; 9.00 per ounce.

Vitamins and Minerals	*Per Hundred Grams*
Vitamin A	1600 U.S.P. Units
Thiamine	0.020 mg.
Riboflavin	0.037 mg.
Ascorbic acid	6.73 mg.
Niacin	0.52 mg.
Calcium	20.0 mg.
Phosphorus	26.5 mg.
Iron	0.38 mg.

Use.—For use in the feeding of older infants and young children.

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SATURDAY, APRIL 1, 1950

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION

According to Webster's Encyclopedic Dictionary, an association is "a society, the members of which are united by mutual interests or for a common purpose." The objects of the American Medical Association under its constitution are "to promote the science and art of medicine and the betterment of public health." In every way the American Medical Association meets the definition of an association in Webster's dictionary. Its members without question have mutual interests and a common purpose in the promotion of better health.

Membership in a professional society should not be regarded begrudgingly as an obligation. It is something one should undertake because he believes in what it represents, because he hopes that his aid will provide strength and because he truly wants to be an inseparable part of organizational affairs. Nor should membership be undertaken passively, as one would follow a path of lesser resistance. No, the member should be determined to participate actively in and support his association's programs. If he disagrees with these programs, he should feel free to present his disagreements to the respective officers or committees, but if he does not disagree and accepts the programs, he should do his best to advance them. Such is the democratic way of living in freedom.

The policies of the American Medical Association are defined by its House of Delegates, which is the legislative body and which elects general officers. It is composed of delegates elected by the constituent associations and by the sections of the Scientific Assembly and of delegates from several medical departments in the armed services, the Veterans Administration and the United States Public Health Service. Thus the policies of the American Medical Association stem principally from the constituent associations where the delegates are elected by the local votes of constituent members.

Until action was taken by the House of Delegates at the December 1949 meeting, members in good standing of the constituent associations were members of the American Medical Association without payment of dues, provided certain minimum requirements were met. In December the House of Delegates voted to require dues for membership in the Association. This was an unusual step in that it was the first time in the history of the Association that members were to pay dues. But it is not an unusual action in organization affairs, as the members of most active associations pay a contributory part of the cost of advancing their associations' programs. The truly unusual phase of the American Medical Association's history has been the absence of dues for more than a century.

The advancement of medical education, the examination of foods, drugs, devices and cosmetics, the promotion of voluntary insurance plans, the encouragement of healthful working conditions, the health education of lay persons and the many other phases of work sponsored by the American Medical Association cause heavy expenditures. But they are necessary if the medical profession is to meet its obligations. Furthermore, today there is special need to call attention to the work the profession and its Association have been undertaking for so many years without fanfare. This effort alone is expensive.

There are many benefits of membership in a professional organization. Some of the benefits of membership in the American Medical Association are mentioned in its Constitution and By-Laws. Others are described in the booklet "American Medical Association Handbook 1949-1950," copies of which are now in the mails for all members. This booklet explains among other things the makeup of the Association, its administration and its scientific and socioeconomic activities. Elsewhere in this issue of THE JOURNAL is a list of questions and answers on payment of membership dues. Those who are interested in additional information may secure it by writing to Dr. George F. Lull, Secretary and General Manager of the American Medical Association. Interest in membership cannot be stressed too strongly, especially at this time when some individuals are making determined efforts to place the health of the nation and medical practice under federal control. Physicians and patients have much at stake. It behooves the medical profession to offer a united front if it is to defeat these attempts to make health the pawn of political sciolists.

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INFANT MORTALITY

Elsewhere in this issue is a summary of a new bulletin on the infant mortality problem in the United States and other leading nations by the Bureau of Medical Economic Research of the American Medical Association. One of the major objectives of the study was to find an explanation for the fact that the United States had the world's lowest infant mortality rate for the age group 6 months and under 1 year in 1946, but trailed New Zealand (excluding native Maoris) slightly in the age group under 6 months. A large portion of the explanation was found in the apparent difference in the classification of a birth as a stillbirth or as a live birth and an early death, particularly in the case of a premature birth. This was revealed by an analysis of the stillbirth-neonatal rates for the leading countries of the world; this rate is obtained by adding the number of stillbirths per thousand total births to the number of neonatal deaths (under 1 month) per thousand total births.

The Bureau's bulletin and summary reveal that the magnitude of the problem, on the basis of this important index of stillbirths and neonatal deaths, is about the same in each of the leading nations of the world. The authors stress the fact that a stillbirth represents almost as much of a failure as an early infant death. The major causes of infant deaths over 1 month and under 1 year, pneumonia and diarrhea, have been largely conquered in most sections of the United States already.

Through correspondence with the state health departments, the Bureau collected data from which they calculated a provisional 1948 infant mortality rate of 31.7 for the United States. New Zealand was the leader in 1948 with a rate of 22. Infant deaths in the age group over 1 month and under 1 year, especially in the age group 1 month and under 6 months, account for one third of the difference between the infant mortality rates of the United States and New Zealand. The authors show in their analysis that the remaining two thirds is explained by the stillbirth-neonatal rates. In fact, they found that all the leading nations have approximately the same stillbirth-neonatal rate. The remaining two thirds is, therefore, a statistical illusion.

Comparisons of individual states in this country with leading nations of the world further reveal the outstanding infant mortality record of the United States. Such comparisons must be made in view of the fundamental differences between a large country, such as the United States, and a small country with a great degree of racial uniformity, such as New Zealand or Sweden.

The bulletin provides valuable information on the rapid strides being made in the United States in improving the health of the people. Many otherwise well informed persons are not cognizant of the tremendous health progress made since the agitation for compulsory sickness insurance began in the middle of the 1930's. The infant mortality rate for the United States declined from 56 in 1935 to 32 in 1947, whereas the rate for New Zealand, the leader, declined from 32 to 25. Thus the decline in infant mortality for the United States has been very great. Most of the difference between the current rates for the United States and New Zealand is explained by differences between the definitions and rules of the two countries regarding stillbirths and early infant deaths.

The data for maternal mortality indicate an even more phenomenal rate of progress. The maternal deaths per thousand live births for the United States declined from 5.8 in 1935 to 1.3 in 1947, whereas the corresponding rates for New Zealand were 4.2 and 1.1. These infant and maternal mortality rates do not include the native Maoris in New Zealand but do include all racial groups in the United States, even the native American Indians. The infant mortality rate among Indians is relatively high although the federal government provides the medical care for many of them. Recent data on life expectancy at birth, the third accepted measure of the general health situation, are not available for the small countries which have been the leaders in the past. Life expectancy values for earlier years were not as good as those for a number of our leading states; for example, the Swedes apparently live longer in Minnesota than they do in Sweden. But it should now be clear to the well informed that the health of the people of the United States, including all racial groups, as indicated by vital statistics, is now or soon will be better than that indicated by comparable statistics for any nation in the world. The United States has come a long way since 1935. Considering the handicaps of the mixed racial population of the United States, our health progress has been so great since 1935 that there is certainly now no reason to believe that there is any health crisis in the United States which justifies a revolutionary change in our system of delivering medical care.

ANIMALS FOR MEDICAL RESEARCH

In New York, bills have been introduced into the state legislature to amend the Stray Animals Act. Among other things, the amendment will provide for vaccination against rabies of all dogs licensed by the Society for Prevention of Cruelty to Animals. In New York state, dogs are licensed by the Society for Prevention of Cruelty to Animals. The amendments which would make animals available for medical research also increase the license fees, and thus will increase the budget for the SPCA, perhaps by an additional $600,000 per year.

Seventy-eight organizations have already pledged support to these amendments. This is one of the tangible results of the resolution taken approximately five years ago by a group of medical scientists to stop

defending themselves against the libels of the antivivisectionists and, instead, to attack the problem of animals in research in a constructive manner, by forming a National Society for Medical Research. The deceptive propaganda of the antivivisectionists should be exposed for what it is; the work of the Society will be helpful in the achievement of this objective. Even more important, stray animals from many pounds can be made available by appropriate legislation to scientific institutions for use in research.

The National Society for Medical Research has estimated that the proposed amendment would save for medical studies a significant portion of the 70,000 dogs and 150,000 cats now destroyed by the SPCA in New York each year. No one desires animals to suffer needlessly. Sensible persons realize that medical research cannot progress at a moderate pace without using certain animals, of which dogs and cats are among the most useful. Thousands of dogs and even larger numbers of cats are destroyed by humane organizations every year. The constructive use of such animals has been hindered by the activities of a small but active group of antivivisectionists. Local active support by the medical profession of the necessary action will help solve these problems.

Current Comment

CULTIVATION OF INFLUENZA VIRUS IN EGG CAVITIES

Fertilized chicken eggs form an excellent medium for the cultivation of many viruses. Some of them show specific affinities for certain structures of the egg. Thus, the main site of multiplication for the influenza virus is the chorioallantoic membrane. Bernkopf [1] of the School of Public Health, University of Michigan, therefore suggests eliminating the other constituents of the egg and using the chorioallantoic membrane alone for the cultivation of this virus. Eggs are incubated 14 to 15 days. The embryo and yolk sac are then poured out and their connection with the chorioallantoic membrane severed. The chorioallantoic membrane is now the only embryonic structure remaining in the shell. The inner surface of this membrane is thoroughly washed with isotonic salt solution. The shell is then filled with Tyrode's solution containing 10 units of penicillin and 40 micrograms of streptomycin per cubic centimeter. Finally the Tyrode solution is inoculated with the virus to be cultivated. The shell opening is now covered with a sterile rubber cap and sealed with hot paraffin. The inoculated deembryonated egg is incubated at 37 C. in a test tube roller which makes six revolutions per hour. One can withdraw fluid from the egg at desired intervals by piercing the rubber cap with a sterile hypodermic needle. With the PR8 strain of the influenza virus, hemagglutination titers of 1,280 to 2,560 are regularly obtained after 24 hours' incubation. The egg cavity method has several practical applications. For virus inoculation from throat washings it is possible to introduce larger amounts of fluid into the egg than by routine methods. In the production of vaccines multiplication of the virus may be obtained in a medium of chosen composition and the effect of inhibitors and accelerators accurately studied.

1. Bernkopf, H.: Proc. Soc. Exper. Biol. & Med. 73:680 (Dec.) 1949.

RED CROSS MODIFIES HOME NURSING PROGRAM

The American National Red Cross has offered classes in home care of the sick and in the care of mothers having babies since 1914. More than three million certificates have been earned in these courses by high school and university students, homemakers and other interested persons. These courses have now been reorganized after a study made by the staff and the board of governors of the Red Cross. The Summer Home Nursing Course has been reorganized into two courses, one of which is "Home Care of the Sick" and the other "Mother and Baby Care." The first course is given by selected instructors who need not be nurses, but the second is given only by nurses. Both courses are closely supervised by professional nurses. This is the sort of quiet, persistent, constructive activity which has done so much to improve the health of the American people. It is an effort which the people support through their monetary gifts and in which they participate by giving their time and effort to improve their own competence in the health field. Programs like this are in accord with the philosophy expressed by Clara Barton, founder of the Red Cross, when she said, "These shall not eat the bread of idleness, the able bodied must work for what they receive."

AMERICAN MEDICAL DIRECTORY

The new, eighteenth edition of the AMERICAN MEDICAL DIRECTORY will soon be ready for delivery on orders already on file. About 1,400 pages of the book have been printed. The unusual delay in publishing this Directory was caused by the fact that the type for the entire book had to be reset. The Directory will contain biographic information on 219,678 physicians, including 51,984 who were not listed in previous editions. Practically all of these are physicians who graduated in the last seven years. The names of 28,242 deceased physicians have been dropped from the Directory. The book will contain about 2,904 pages, or 132 more than were in the previous edition, which was published in 1942. It is expected that delivery of the Directory will begin June 1, 1950.

ORGANIZATION SECTION

Official Notes

PAYMENT OF A. M. A. DUES

The office of the Secretary of the American Medical Association is receiving many questions concerning the payment of dues voted by the House of Delegates at its December 1949 meeting. Some of the questions and the answers offered by the Secretary's office are reproduced herewith for the information of THE JOURNAL'S *readers. In the editorial pages of this issue of* THE JOURNAL *is a statement on membership and fellowship in the American Medical Association.*—EDITOR.

QUESTION: *Does the American Medical Association require the payment of dues by its members?*

ANSWER: Yes. For the first time in its history, the members of the American Medical Association in 1950 will pay membership dues. These dues apply to all members of the Association except those in three specific categories.

QUESTION: *What is the amount of the dues for 1950?*

ANSWER: $25.

QUESTION: *What are the American Medical Association 1950 membership dues of a physician who joins his county medical society after July 1?*

ANSWER: Dues for physicians who become members after July 1, 1950, are $12.50. The dues for all members before July 1 are $25.

QUESTION: *Does a member who transfers from one state or county to another pay American Medical Association membership dues a second time?*

ANSWER: No. A member pays his American Medical Association dues only once in a calendar year.

QUESTION: *By what authority were the dues set at the $25 level?*

ANSWER: On recommendation of the Board of Trustees and approval by the House of Delegates in December 1949 in accordance with the provisions of the Constitution and By-Laws of the American Medical Association.

QUESTION: *What members are exempt from the payment of American Medical Association membership dues for the year 1950?*

ANSWER: (*a*) Members for whom the payment of dues constitutes a financial hardship as determined by their local medical societies.

(*b*) Members in actual hospital training for not more than five years after graduation from medical school.

(*c*) Members who have retired from active practice.

In all instances exemption may be allowed only if the member is also exempt from state and county medical society dues.

QUESTION: *To whom should the American Medical Association membership dues be paid?*

ANSWER: To the local or state society, depending on the system of payment established by the state medical association concerned.

QUESTION: *When should American Medical Association 1950 membership dues be paid?*

ANSWER: When the member receives his bill from his local or state society. No remittance of membership dues should be made directly to the American Medical Association.

QUESTION: *What is the relation between American Medical Association membership dues and Fellowship dues?*

ANSWER: (*a*) The status of Fellowship and Fellowship dues has not been changed by the establishment of American Medical Association membership dues.

(*b*) Members may become Fellows—subject to approval by the Judicial Council—by requesting such status on a form supplied by the American Medical Association.

(*c*) Fellowship dues of $12 and membership dues of $25 are separate dues. *Members who are or who become Fellows, therefore, pay a total, combined Fellowship and membership dues, of $37.*

Fellowship dues include subscription to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION or to one of the special journals.

QUESTION: *What is a Service Fellow?*

ANSWER: Commissioned medical officers of the Armed Forces and the United States Public Health Service and permanent medical officers of the Veterans' Administration may become Service Fellows of the American Medical Association on nomination by their chief medical officers and approval by the Judicial Council. Service Fellows are not required to pay Fellowship dues and do not receive any publication of the Association except by personal subscription.

QUESTION: *Must a Service Fellow be also a member of the American Medical Association?*

ANSWER: No. Service Fellowship is a special category of Fellowship established for physicians in full time Government service, many of whom are not eligible for membership in their local medical societies. However, a Service Fellow who is a member of a local medical society may elect to pay American Medical Association dues for 1950 and thereby continue his membership in the American Medical Association.

QUESTION: *What action is taken when there is failure to pay American Medical Association membership dues?*

ANSWER: Members who are delinquent in the payment of American Medical Association dues for one year and who fail to pay such delinquent dues within 30 days after receipt of notification from the Secretary of the American Medical Association will forfeit membership in the American Medical Association. Retention of membership in the local and state medical societies under these circumstances will depend on the local action of those societies.

Washington Letter

(From a Special Correspondent)

March 27, 1950.

Federal Funds for Medical Research

Government support of medical research apparently will not be reduced next year, in spite of the economy drive in Congress. On March 21 the House Appropriations Committee favorably reported a bill which, while cutting the Federal Security Agency appropriation $43,299,010 below the figure recommended by President Truman, deals liberally with research and disease control activities of Public Health Service, an FSA component. The committee not only approved the full $13,250,000 recommended by the Budget Bureau for National Institutes of Health but inserted an additional $2,500,000 to increase scientific investigations of the steroid hormones. A substantial portion of the NIH appropriation will be administered by the Division of Research Grants and Fellowships.

The National Cancer Institute similarly received the full $20,080,000 requested by President Truman and the Budget Bureau. However, no funds were provided for subsidizing construction and expansion of cancer research laboratories and other facilities, despite appeals made at recent hearings that at least $14,000,000 be allocated for this purpose.

For the National Mental Health Institute, $9,944,000 was approved, as recommended in the White House budget. This figure is $1,345,000 above the sum appropriated for the current fiscal year, which ends June 30, 1950.

The National Heart Institute receives the full budget estimate of $14,150,000, an increase of $3,338,500 over the present year. Largest items under this heading are $3,020,000 for research grants, $2,000,000 grants to states for control activities, $1,830,-

354 for support of intramural investigations at the institute and $741,000 for support of cancer teaching throughout the country.

The Senate will not act on the annual appropriations bill until it has been passed by the House.

Atlanta Screening Program Opening April 4

The Public Health Service has announced that its multiphasic screening program in Atlanta, Ga., largest attempted to date, will be opened April 4. Between 250,000 and 300,000 persons are expected to receive examinations for tuberculosis, syphilis, diabetes, anemia and oral lesions. Twelve clinics will be used for the project.

Coming Medical Meetings

Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Academy of Neurology, Cincinnati, Netherlands-Plaza Hotel, April 14-15. Dr. Joe R. Brown, Mayo Clinic, Rochester, Minn., Secretary.

American Association for Thoracic Surgery, Denver, Colo., April 15-19. Dr. Brian Blades, 901 Twenty-Third St. N.W., Washington, D. C., Secretary.

American Association of Anatomists, New Orleans, Louisiana State University, April 3-5. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Chicago, Hotel Sherman, April 24-28. Dr. Frederick W. Slobe, 28 E. Jackson Blvd., Chicago 4, Secretary.

American Association of Pathologists and Bacteriologists, Madison, Wis., April 14-15. Dr. Alan R. Moritz, 3085 Adelbert Road, Cleveland 6, Secretary.

American Association of Railway Surgeons, Chicago, Drake Hotel, April 4-6. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

American Association on Mental Deficiency, Columbus, Ohio, Hotel Deshler-Wallick, May 16-20. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

American College of Physicians, Boston, April 17-21. Dr. George Morris Piersol, 4200 Pine St., Philadelphia, Secretary General.

American Congress on Obstetrics and Gynecology, New York, Hotel Pennsylvania, May 14-19. Dr. F. Bayard Carter, Duke Medical School, Durham, N. C., Secretary.

American Gastro-Enterological Association, Atlantic City, April 28-29. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., The Greenbrier, May 11-13. Dr. Norman F. Miller, 1313 E. Ann St., Ann Arbor, Mich., Secretary.

American Pediatric Society, French Lick, Ind., May 8-10. Dr. Henry G. Puncher, 1819 W. Polk St., Chicago 12, Secretary.

American Physiological Society, Atlantic City, April 17-21. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Psychiatric Association, Detroit, May 1-5. Dr. Leo H. Bartemeier, General Motors Bldg., Detroit 2, Secretary.

American Psychoanalytic Association, Detroit, Hotel Statler, April 28-30. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Psychosomatic Society, Atlantic City, Chalfonte-Haddon Hall, April 29. Dr. Sydney G. Margolin, 714 Madison Ave., New York 21, Secretary.

American Society for Clinical Investigation, Atlantic City, May 1. Dr. Paul B. Beeson, Grady Hospital, Atlanta 3, Ga., Secretary.

American Society for Experimental Pathology, Atlantic City, April 11. Dr. Sidney C. Madden, Brookhaven National Laboratory, Upton, L. I., New York, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, April 17-21. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society of Biological Chemists, Atlantic City, April 9-14. Dr. R. W. Jackson, 825 N. University St., Peoria 5, Ill., Secretary.

American Surgical Association, Colorado Springs, Colo., April 19-23. Dr. Nathan Womack, University Hospitals, Iowa City, Iowa, Secretary.

American Therapeutic Society, Boston, April 13-16. Dr. Oscar B. Hunter, 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

Arizona State Medical Association, Phoenix, Hotel Westward Ho, April 30-May 4. Dr. Frank J. Milloy, 234 N. Central Ave., Phoenix, Secretary.

Arkansas Medical Society, Fort Smith, April 17-19. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 2-3. Dr. Henry M. Thomas Jr., 1201 N. Calvert St., Baltimore 2, Secretary.

California Medical Association, San Diego, April 30-May 3. Dr. L. Henry Garland, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Waterbury, May 2-4. Dr. Creighton Barker, 160 St. Ronan St., New Haven, Secretary.

Federation of American Societies for Experimental Biology, Atlantic City, April 17-21. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Secretary.

Florida Medical Association, Hollywood, April 23-26. Dr. Robert B. McIver, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Macon, Hotel Dempsey, April 18-21. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Hilo, May 4-7. Dr. I. L. Tilden, Mabel Smyth Bldg., Honolulu 13, Secretary.

International and Fourth American Congress on Obstetrics and Gynecology, New York, Hotel Pennsylvania, May 14-19. Dr. Fred L. Adair, 161 E. Erie St., Chicago 11, Information Headquarters.

Iowa State Medical Society, Burlington, April 23-26. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Kansas Medical Society, Wichita, May 15-18. Dr. D. D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, Baton Rouge, April 24-26. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans 13, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 25-26. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Boston, Hotel Statler, May 16-19. Dr. H. Quimby Gallupe, 8 Fenway, Boston 15, Secretary.

Mississippi State Medical Association, Jackson, May 9-11. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

National Tuberculosis Association, Washington, D. C., April 25-28. Dr. James E. Perkins, 1790 Broadway, New York 19, Managing Director.

Nebraska State Medical Association, Lincoln, Hotel Cornhusker, May 1-4. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln, Secretary.

New Mexico Medical Society, Las Cruces, May 4-7. Dr. H. L. January, 4852 Southern Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, New York, May 8-12. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Central Clinical Society, Cincinnati, Netherland Plaza Hotel, April 29. Dr. John H. Payne, 3 W. Fourth St., Cincinnati, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, The Carolina, May 1-3. Dr. Millard D. Hill, 15 W. Hargett St., Raleigh, Secretary.

Northern Tri-State Medical Association, Grand Rapids, Mich., April 11. Dr. William H. Gordon, 1553 Woodward Ave., Detroit, Secretary.

Ohio State Medical Association, Cleveland, May 16-19. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 14-17. Dr. Lewis J. Moorman, 210 Plaza Court, Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, R. I. Medical Library, May 10-11. Dr. Morgan Cutts, 106 E. Francis St., Providence 3, Secretary.

Society of American Bacteriologists, Baltimore, May 15-19. Dr. John E. Blair, 1919 Madison Ave., New York 35, Secretary.

South Carolina Medical Association, Myrtle Beach, May 16-18. Dr. Julian P. Price, 105 W. Cheves St., Florence, Secretary.

Tennessee State Medical Association, Memphis, April 10-12. Dr. W. M. Hardy, 706 Church St., Nashville 3, Secretary.

Texas, State Medical Association of, Fort Worth, May 2-5. Dr. Harold M. Williams, 700 Guadalupe St., Austin, Secretary.

Medical Legislation

STATE LEGISLATION

Arizona

Bill Enacted.—H. 5-X was approved March 11, 1950. It enacts a completely **new motor vehicle act** which, among other things, permits the introduction in evidence of results of chemical analyses of a defendant's blood, urine, breath or other bodily substance to determine the amount of alcohol in defendant's blood at the time of a charge of operating a motor vehicle while under the influence of intoxicating liquor.

Kentucky

Bills Introduced.—H. 465 proposes to authorize the board of trustees of the University of Kentucky to establish and operate a **College of Medicine and Surgery.** S. Res. 67 proposes that the General Assembly go on record against any form of **compulsory health insurance** or any system of political medicine designed for national bureaucratic control and that a copy of such resolution be sent to the senators and representatives in the United States Congress from Kentucky.

New Jersey

Bills Introduced.—A. 469, to amend the act regulating the practice of medicine and surgery, proposes a **penalty of $1,000** for a third or subsequent offense against the provisions of the medical practice act. A. 472 proposes to direct the director of the division of motor vehicles to provide and issue without additional cost to the applicant **special identification markers** or license plates indicating that any motor vehicle for which the same is furnished is owned by a licensed physician. S. J. Res. 3 proposes the designation of the month of April as **Cancer Control Month.**

New York

Bills Introduced.—A. 2894, to amend the administrative code, proposes to save **harmless medical superintendents,** deputy medical superintendents, lay superintendents and deputy lay superintendents of the department of hospitals from liability for their medical or administrative acts. S. 2814, to amend the mental hygiene law, proposes the creation and establishment of a **mental hygiene council of ten members,** at least six of whom shall be physicians with a minimum of five years experience after internship. Two of such physicians shall be skilled in the practice of psychiatry, one in the practice of hospital administration, one in the practice of pediatrics, one in the practice of internal medicine and one in the field of public health education.

Virginia

Bill Introduced.—S. J. Res. 42 proposes that the General Assembly of Virginia respectfully request the Congress of the United States to refrain from enacting any legislation which will impose on the people of this state **compulsory health insurance** or any form of government administered medical and hospital care.

Bill Enacted.—H. 104 has become chapter 143 of the Laws of 1950. It requires every hospital and clinic to make available to the State Department of Health abstracts of records of patients having **malignant tumors** or cancers.

GOVERNMENT SERVICES

NAVY

THE NAVY NEEDS INTERNS

The Navy has opened a procurement program for the appointment of 265 qualified candidates to the grade of lieutenant (jg) in the Medical Corps of the Naval Reserve for the purpose of pursuing intern training in civilian hospitals and medical centers during the fiscal year 1951. Candidates must be graduates of or enrolled in the fourth year class of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association and in other respects meet the standards for appointment in the Medical Corps of the Naval Reserve. They must have contracted for a rotating internship of 12 months' duration (for the 1950-1951 training year) in an approved civilian hospital or medical center. Applicants scheduled to pursue straight internships and internships of more than 12 months will be ineligible for admission to the program. The latter year of a 24 month rotating internship will be acceptable if the candidate is already engaged in intern training.

Applicants are strongly urged to submit their applications as early as possible, as the closing date is May 15. Applications must be filed through the Office of Naval Officer Procurement nearest the place of residence of the candidate. They then will be forwarded by procurement offices to the Bureau of Naval Personnel for recording and thence to the Bureau of Medicine and Surgery for determination of the candidate's qualifications.

Selected candidates will be issued an appointment in the grade of lieutenant (jg) in the Medical Corps of the U. S. Naval Reserve and orders to active duty (at the institution with which they have contracted for the year of training) on or about the date of commencement of internship. Candidates selected will be required to serve on active duty for 24 months beyond the date of completion of intern training.

An additional 192 internships will be provided in naval hospitals during the fiscal year 1951. The selection of candidates for this program was conducted last autumn. All quotas have been filled and the program for placement of interns in naval hospitals for the 1950-1951 training year has been closed. However, candidates not selected for that program because of numerical limitations are eligible to apply for the current civilian intern program. Internships in naval hospitals are rotating in character, of 12 months' duration.

ACTIVATION OF VOLUNTEER RESEARCH RESERVE UNIT

The ceremony for activation of Research Reserve Unit W-5 (Bio-Sciences) was held March 9, at the Naval Medical Center, Bethesda, Md. Among the guests were Rear Admiral T. A. Solberg, chief of naval research; Rear Admiral Lamont Pugh, assistant chief, Bureau of Medicine and Surgery; Capt. W. L. Gates, volunteer reserve program officer, Potomac River Naval Command, and Dr. H. T. Karsner, medical research advisor to the Surgeon General. Comdr. Barry King (MSC, USNR) is the commanding officer of the new Research Reserve Unit. Admiral Pugh said that 85 per cent of the total personnel of the Navy during World War II were members of the Reserve and that at present there are 73 volunteer medical units with a total of 48,703 personnel in all categories.

Research Reserve Unit W-5 is one of 85 research units established throughout the United States not under the Bureau of Medicine and Surgery but sponsored by the Office of Naval Research. The purpose of the reserve unit is to maintain a reserve of scientifically trained civilians who can be ready on a moment's notice to step into uniform.

PUBLIC HEALTH SERVICE

APPOINT CHIEF OF CLINICAL UNIT

Dr. Lewis K. Sweet, chief medical officer of Gallinger Municipal Hospital, Washington, D. C., has been appointed chief of the recently established clinical unit of the Microbiological Institute, National Institutes of Health. The new unit was established to coordinate the clinical work of four laboratories which comprise the Microbiological Institute—Laboratory of Infectious Diseases, Laboratory of Tropical Diseases, Laboratory of Biologics Control (all located at the National Institutes of Health) and the Rocky Mountain Laboratory at Hamilton, Mont. Dr. Sweet will conduct basic clinical-laboratory studies and will later direct clinical investigations on infectious and tropical diseases at the clinical center of the National Institutes of Health, which is scheduled to open in 1952. He received an A.B degree from the University of Texas and an M.D. from Harvard Medical School. From 1932 to 1934 he was assistant in pediatrics at the Peiping Union Medical College, Peiping, China. He was in private practice from 1934 to 1936. From 1936 to 1938 he was medical officer in the U. S. Children's Bureau. He has been at Gallinger Municipal Hospital since 1938. Dr. Sweet is a member of the American Pediatric Society, Society for Research in Child Development, American Medical Association and Medical Society of the District of Columbia.

TRANSFER RESEARCH LABORATORY

The Venereal Disease Research Laboratory of the Public Health Service, formerly located at the Staten Island Marine Hospital, has been transferred to the Communicable Disease Center, Atlanta, Ga. The Laboratory will remain under the technical supervision of the Division of Venereal Disease and will continue to furnish state health departments with the services it has offered in the past.

CERTIFIED BY SPECIALTY BOARDS

The following doctors, commissioned officers of the Public Health Service, were certified by American specialty boards during the last year:

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Norman H. Topping, Asst. Surg. Gen.
Ralph C. Williams, Asst. Surg. Gen.
Frederick J. Brady, Medical Director
Austin Deibert, Medical Director
Robert H. Flinn, Medical Director
Eugene A. Gillis, Medical Director
Paul A. Neal, Medical Director
Winfield K. Sharp, Medical Director
Richard F. Boyd, Sr. Surgeon
Roy E. Butler, Sr. Surgeon
Michael C. Furcolow, Sr. Surgeon
Alexander G. Gilliam, Sr. Surgeon
Harry Heimann, Sr. Surgeon
Harold J. Magnuson, Sr. Surgeon
Arthur W. Newitt, Sr. Surgeon
Henry R. O'Brien, Sr. Surgeon
Wilson T. Sowder, Sr. Surgeon
Charles L. Williams Jr., Sr. Surgeon
Harold S. Barrett, Surgeon
Samuel C. Ingraham II, Surgeon

SURGERY

Thorburn S. McGowan, Medical Director
Walter S. Morden, Medical Director
Carruth Wagnar, Sr. Surgeon

INTERNAL MEDICINE

W. Clark Cooper

PSYCHIATRY

Kenneth W. Chapman, Medical Director
Thomas H. Ainsworth, Sr. Asst. Surgeon

DERMATOLOGY AND SYPHILOLOGY

Paul C. Campbell Jr., Sr. Surgeon

PERSONAL

Dr. Adolph Rumreich has been appointed regional medical director for Region V of the Federal Security Agency with headquarters in Chicago.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

State Medical Meeting.—The annual meeting of the Medical Association of the State of Alabama will be held at the Thomas Jefferson Hotel, Birmingham, April 20-22, under the presidency of Dr. Frank C. Wilson, Birmingham. Invited speakers at the scientific sessions include:

Ralph A. Reis, Chicago, Prolonged Labor.
John C. Burch, Nashville, Tenn., Hysterectomy, Indications and Technic.
Gilson C. Engel, Philadelphia, Problems of Gastric Carcinoma.
Paul D. White, Boston, Jerome Cochran Lecture, Historical Delays in the Application of Knowledge About the Heart.
Hon. Lister Hill, Montgomery, subject to be announced.
Paul C. Swenson, Philadelphia, Responsibility of the Radiologist to the Patient and Referring Clinician in the Examination of the Gastrointestinal Tract.
Frank H. Constantine, New York, Description and Discussion of the Dacryocystorhinostomy Operation.
John Adriani, New Orleans, Management of Anesthetic Emergencies.

A symposium on Congenital Heart Disease will be held Thursday afternoon by faculty members of the Medical College of Alabama in Birmingham. The president's reception and dance is scheduled for Friday at 10 p. m. Both scientific and commercial exhibits will be displayed. The silver anniversary meeting of the Woman's Auxiliary will be held at the Tutwiler Hotel April 20-21.

COLORADO

Postgraduate Course in Rheumatic Fever.—A postgraduate course in rheumatic fever and rheumatic heart disease will be offered by the Denver Rheumatic Fever Diagnostic Service and the University of Colorado, department of medicine, Denver, April 21-22, at the University of Colorado Medical Center, Denver. Recent developments in diagnosis and management of the patient with rheumatic fever will be discussed and the opportunity for actual individual clinical examination of the patients with rheumatic heart disease will be provided. The course is open to all registered physicians who are members of their respective county medical societies. Registration fee will be $5 and tuition, $15. Further inquiries may be made to the Office of Director of Graduate and Postgraduate Medical Education, 4200 East Ninth Avenue, Denver 7.

CONNECTICUT

Annual State Medical Meeting.—The Connecticut State Medical Society will hold its annual meeting at Wilby High School in Waterbury May 2-4, under the presidency of Dr. Charles H. Sprague, Bridgeport. Invited speakers include:

Manfred W. Comfort, Rochester, Minn., New Concepts of Pancreatitis.
W. Warriner Woodruff, Saranac Lake, N. Y., Present Status of the Treatment of Pulmonary Tuberculosis.
Rolland J. Whitacre, East Cleveland, Ohio, Practical Points for the Part-Time Anesthetist.
Robert Elman, St. Louis, Methods of Protein Administration in Surgical Patients.
Harry Gold, New York, Treatment of Some Disorders of Cardiac Rhythm.
Frank E. Cormia, New York, Role of Psychosomatic Factors in Dermatoses.
Mr. J. Carlton Ward Jr., Farmington, Fundamental Principles of Atomic Energy and Some Implications of the Hydrogen Bomb.
Robert A. Cooke, New York, Asthma and Its Management.
Edward J. Stieglitz, Washington, D. C., Emotional Hazards of Senescence.
Philip M. Stimson, New York, Over-All Care of the Subacute and Chronic Poliomyelitis Patient.
Tom D. Spies, Birmingham, Ala., Recent Advances in Nutritional Research.

On Tuesday afternoon there will be a symposium on anemias, blood dyscrasias and blood therapy in children and adults, with Dr. Thomas P. Murdock, Meriden, presiding, and on Thursday afternoon one on endocrine subjects, with Dr. C. Charles Burlingame, Hartford, presiding. The annual dinner will be held Wednesday evening at the Waverly Inn in Cheshire, when Fifty Year Membership Awards will be presented. Sections and special state society meetings will be held on the afternoon of each day. The Woman's Auxiliary to the society will meet May 3 at the Waterbury Country Club.

ILLINOIS

Radio Programs.—"Health Talk," the weekly series on health education televised over WGN-TV, Chicago, under the auspices of the Educational Committee of the Illinois State Medical Society, will present the following programs during April:

April 4, The Second Child Arrives, Lawrence Breslow, Chicago.
April 11, The Rh Factor, Israel Davidsohn, Chicago.
April 18, Metal in Your Bones, Joseph Farrington, Chicago.
April 25, It's Your Heart, Andrew C. Ivy and Louis Krasno, Chicago.

Dr. Theodore R. Van Dellen, assistant dean, Northwestern University Medical School, appears as moderator in these weekly series of the Educational Committee.

Forthcoming programs on "Your Doctor Speaks," a series of transcriptions begun February 2 over WFJL (FM), include:

April 6, Morris Fishbein, Quacks and Quackery.
April 13, Herbert E. Schmitz, Cancer.
April 20, Carlo Scuderi, Care of the Feet.

The series is presented under the auspices of the Chicago Medical Society and the Illinois State Medical Society.

State Premature Care Program Resumed.—After a recent curtailment of state assistance for care of premature infants (THE JOURNAL, February 18, page 294) the State Department of Public Health on March 17 announced that it would again give financial aid for special care of babies weighing up to 5 pounds (2,268 Gm.) at birth. It has been possible to relax the restrictions applied on January 27, because of receipt of unanticipated local and federal funds and the high degree of cooperation of hospitals where premature centers are located. On January 27 the health department had announced that it would lend financial assistance only in cases where the newborn infant weighed 4 pounds (1,814 Gm.) or less. The department also relaxed a ruling made at the same time that infants should be referred to a premature center within 24 hours to be eligible for state assistance. The state health department underwrites the care of premature infants in cases in which parents are unable to bear the expenses, only if the infants are referred to centers in St. Francis Hospital, Peoria; St. John's Hospital, Springfield, and Christian Welfare Hospital, East St. Louis.

Chicago

Davis Lecture in Medical History.—Dr. Joseph A. Capps, emeritus professor of clinical medicine at the University of Chicago, delivered the annual D. J. Davis Lecture on Medical History at the University of Illinois College of Medicine, March 29.

Honor Staff Members on Anniversary.—Nine physicians were among 17 staff members honored at the twenty-fifth anniversary observance of the opening of the University of Illinois' Research and Educational Hospitals on April 1. Staff members who have served continuously since April 1, 1925 were presented keys by Dr. Andrew C. Ivy, vice president of the university in charge of the Chicago Professional Colleges, at a dinner and reception at the Sheraton Hotel. They were Hallard Beard, Carroll L. Birch, Edmund F. Foley, Willard Van Hazel, Francis L. Lederer, Francis E. Senear, Michael H. Streicher, Walter H. Theobald and Leonard F. Weber. Guest speaker for the evening was George D. Stoddard, LL.D., president of the university. Mr. John E. Millizen, administrator of the hospitals, served as master of ceremonies. The Research and Educational Hospitals, operated for the advancement of medical education and research, have admitted 150,000 patients for bed treatment since the first patients were treated in 1925, and 365,000 patients have received treatment in the outpatient clinics. During the 1948-1949 fiscal year 7,100 patients received bed care, while outpatient clinics, numbering 24, had 189,000 visits.

KENTUCKY

Radiologist to Present Lectures.—A series of lectures will be presented the week of April 16-22 at 12 noon in the amphitheater of the Louisville General Hospital by Dr. H. Dadney Kerr, professor of radiology, State University of Iowa College of Medicine, Iowa City, on roentgen therapy and the use of radium. Members of the state association are invited.

Grievance Committee in Operation.—The recently organized grievance committee of the Kentucky State Medical Association, under the chairmanship of Dr. Charles A. Vance, Lexington, is now functioning. According to Dr. Vance, most of the complaints are concerned with fees charged. The chairman is urging that patients with legitimate grievances send them to the committee member residing nearest the patient. Other members are Drs. Guy Aud, Louisville; Elbert W. Jackson, Paducah; Oscar O. Miller, Louisville, and J. Watts Stovall, Grayson.

MASSACHUSETTS

Public Health Problems of Atomic Energy.—A course of lectures on the public health problems of atomic energy will be given under the auspices of the department of public health practice, Harvard School of Public Health, on Monday afternoon from 4 to 5 p. m., Amphitheatre E, April 10 to May 29. The course is as follows:

April 10, Public Health Problems of Atomic Energy and the Local Health Officer, James S. Simmons and Vlado A. Getting, Boston.

April 17, Introduction to Nuclear Physics: Fundamentals; Nuclear Fission and Chain Reaction, Roger W. Hickman, Ph.D., Boston.

April 24, Medical Aspects of Atomic Explosion, William A. Meissner, Boston.

May 1, Radiation Pathology and Pathologic Anatomy, Shields Warren.

May 8, Essentials of Instrumentation: Types of Instruments, Special Uses and Limitation, Improvisation, Charles R. Williams, Ph.D., Boston.

May 15, Public Health Aspects of Atomic Explosion, James H. Sterner, Rochester, N. Y.

May 22, Protection: Passive Defense and Protection: Nuclear Radiation Delayed Radiation, in Relation to Professional Personnel and the Public, Arthur K. Solomon, Ph.D., Cambridge.

May 29, Radioisotopes and Their Public Health Implications, Paul C. Aebersold, Ph.D., Oak Ridge, Tenn.

Interested physicians may apply for preregistration to the Secretary, Harvard School of Public Health, 55 Shattuck Street, Boston 15.

MICHIGAN

Gudakunst Memorial Lecture.—Dr. Charles Armstrong of the National Institutes of Health, Washington, D. C., will deliver the first Don W. Gudakunst Memorial Lecture at the University of Michigan May 8 on the "Problem of Poliomyelitis."

Dr. DeJong Succeeds Dr. Camp as Department Chairman.—Dr. Russell N. DeJong, associate professor of neurology, University of Michigan Medical School, Ann Arbor, has been promoted to professor and chairman of the department, succeeding Dr. Carl D. Camp, who has held the position for the past 42 years and is being retired. Dr. DeJong has been associated with the university since he received his medical degree there in 1932. He was an instructor in neurology from 1934 until 1937, when he was promoted to the rank of assistant professor. In July 1941 he was made associate professor of neurology. Dr. Camp joined the medical school as clinical professor of diseases of the nervous system, which title was changed to professor of neurology in 1920.

NEW YORK

Cancer Detection Clinic.—A new cancer detection center was opened in Lawrence Hospital in Bronxville, February 14. Patients are referred to their own physician for future examinations and for treatment if necessary. It is being sponsored by the Westchester Cancer Committee.

Postgraduate Instruction.—The Jefferson County Medical Society will hear Dr. George P. Heckel of Rochester, N. Y., speak on "Practical Applications of Endocrines in Gynecology" at a meeting at 6:30 p. m., April 18, at the Black River Valley Club in Watertown. Dr. Mario F. Tagliagambe of New York will address the society May 16 at the same time and place on "Bursitis, Sprains and Strains." On April 21 Dr. Howard T. Behrman, New York, will address the Queens County Medical Society meeting at 4 p. m. at the society building in Forest Hills on "Diagnosis and Treatment of Common Skin Diseases."

New York City

Alumni Day.—The annual Alumni Day activities of the Long Island College of Medicine will take place April 29. There will be a scientific session at Polhemus Clinic in the morning followed by a dinner at the Columbus Club in Brooklyn at 7 p. m. The principal speaker will be Dr. Jean A. Curran, president of the college.

Janeway Lecture.—The Edward G. Janeway Lecture of the Mount Sinai Hospital of New York will be delivered by Dr. Joseph L. Lilienthal Jr., associate professor of medicine, Johns Hopkins University, Baltimore, April 13 at 8:30 p. m. in the Blumenthal Auditorium. His subject will be "The Role of the Neuromuscular Unit in Internal Medicine."

Survey Discharged Patients.—New York University College of Medicine, under a grant of $40,000 from the New York Foundation, will make a two year survey of about 500 physically disabled persons who last year completed rehabilitation training in hospitals staffed by the university. Its purpose is to determine on a large scale basis the effectiveness of physical medicine and rehabilitation technics in restoring disabled persons to normal living. Persons to be included are former patients of Bellevue, Goldwater Memorial and University hospitals and the Institute of Physical Medicine and Rehabilitation. The research project will be directed by Mrs. Georgia F. McCoy, formerly a public assistance analyst for the Federal Security Administration. Headquarters for the survey will be in Bellevue Hospital.

Hospital Honors Staff Physicians.—In appreciation of 25 years of service a testimonial dinner was given to Dr. Abraham M. Rabiner on March 12 by the medical staff of the Jewish Sanitarium and Hospital for Chronic Diseases in Brooklyn. Dr. Rabiner is director of neurology and clinical director of the institution. It was announced that the board of directors of the institution had established the Dr. Abraham M. Rabiner Research Fellowship. Dr. Rabiner has been instrumental in stimulating medical expansion and the creation of research facilities as well as the teaching program at the institution.

NORTH CAROLINA

Postgraduate Course in Medicine.—The School of Medicine and the Extension Division of the University of North Carolina, Chapel Hill, in conjunction with the Wake County Medical Society, is sponsoring a postgraduate course in medicine at the University Hospital on Thursdays March 30-May18. Afternoon sessions will begin at 4 and evening sessions at 8 o'clock. No meetings are scheduled for April 20 or May 4. Lecturers on succeeding weeks are Drs. Helen B. Taussig, Baltimore; Joseph E. Warren, Boston; Robert D. Dripps, Philadelphia; Richard H. Overholt and William P. Chapman, Boston, and Horace Hodes, New York.

OHIO

Medical History Program.—The Ohio Committee of Medical History and Archives of the Ohio Archaeological and Historical Society and the American Association of the History of Medicine will hold a meeting April 15 at the State Museum, Columbus.

Clinic and Lecture on Vascular Disease.—Dr. David I. Abramson, assistant professor of medicine at the University of Illinois College of Medicine, Chicago, will deliver the last lecture in the postgraduate course on peripheral vascular disease at the Mount Sinai Hospital of Cleveland on "Physiologic Basis for Sympathetic Denervation of Blood Vessels as Therapy in Peripheral Vascular Disorders." The lecture will be held in the Auditorium, Residence Hall, April 13 at 8:30 p. m. At 10:30 a. m. Dr. Abramson will hold a clinic on peripheral vascular disease at the hospital. The medical profession is invited.

OKLAHOMA

Nursing Problems of Poliomyelitis.—A conference on the diagnosis and clinical management and nursing problems of poliomyelitis will be held in Enid April 11-12, under the sponsorship of the Garfield-Kingfisher County Medical Society. The conference has been planned by the office of Postgraduate Instruction, Oklahoma University School of Medicine. Dr. Thomas Gucker of the Children's Hospital, Boston, will be the guest speaker and moderator. The first day of the conference will be devoted to a discussion of diagnosis and clinical management of poliomyelitis and the second day to nursing problems associated with care of patients with poliomyelitis. Physicians and nurses of northwest Oklahoma are invited to attend.

PENNSYLVANIA

State Health Council.—Dr. Gilson C. Engle, chief surgeon of Lankenau Hospital, Philadelphia, was selected president of the Pennsylvania Health Council, which was formed at a meeting of representatives of some 42 health agencies of the commonwealth in Harrisburg February 11. The council is dedicated to the development of a health program for the state and will be patterned after the National Health Council. The 42 agencies, which became charter members, will retain their independence but will work together in furthering a statewide health program. The council's policy, adopted along with by-laws, states its objectives as follows: "To assist in co-ordinating, as far as possible, the planning and activities of all agencies concerned with community health; to study health needs of the commonwealth by means of appropriate survey, inventories and fact-finding activities; to stimulate public interest in health needs and their solutions; to help develop and promote constructive health programs; to propose constructive and needed legislation and to work for its enactment into law, and to work cooperatively with local health councils." William G. Mather, Pennsylvania State College, was elected secretary and Edward M. Green, Harrisburg, treasurer.

Philadelphia

Paraplegia Fellowship Fund.—This fund has been created at the medical laboratories of the University of Pennsylvania for a new research program to aid crippled war veterans and other paraplegic victims. The fund will be used exclusively for an investigative program for the relief of bedridden and wheel chair patients. William Chambers, Ph.D., assistant professor of anatomy at the university's school of medicine, has been selected to head the new project.

Appoint Clinical Professor.—Dr. Louis Cohen has been named clinical professor of medicine at Temple University School of Medicine to succeed his brother, the late Dr. Abraham J. Cohen. He has held the rank of associate professor of medicine at the university for several years, is chief visiting physician for the tuberculosis department of Philadelphia General Hospital and the Philadelphia General Hospital for Contagious Diseases, chief of the chest department at Montgomery Hospital in Norristown and chief of the pneumothorax clinic in Norristown for the state. Dr. Cohen has also been appointed medical director of Eagleville Sanatorium for Consumptives. He has been associated with the sanitorium for 26 years, more recently as assistant medical director. He is a graduate of the University of Pennsylvania School of Medicine (1923) and took postgraduate studies in Vienna.

Pittsburgh

Health Department Reorganized.—Based on recommendations following a survey in Pittsburgh by the U. S. Public Health Service, the city is reorganizing its department of public health with the support of 13 citizens' committees. These committees concurrently with the U. S. Public Health Service served on the survey team. The full reorganization program cannot be carried out entirely for several years. An office of personnel and business management has been established. A Bureau of Public Health Nursing has been established to bring together several separate nursing services into one unit. District nursing offices will be established having the boundaries as those of the visiting nurses association. A director of the maternal and infant program has been appointed to take over the responsibility for the development of a coordinated program to assure prenatal care and infant and preschool health services. The program is within the Division of Maternal and Child Health. The Bureau of Inspection has been changed to the Bureau of Sanitation to imply educational methods rather than inspection. Provision has been made for a director of tuberculosis control, an appointment to increase the case-finding program and adequate follow-up procedures and hospitalization when indicated. The local tuberculosis societies are furnishing the city with the salary for one social worker and the beginning of a social service department at Leech Farm Sanatorium, the city tuberculosis hospital.

VIRGINIA

Clinical Assembly in Alexandria.—The Alexandria Virginia Medical Society will hold a Clinical Assembly on April 16 at the Ficklin School Auditorium in Alexandria. The speakers will be:

Custis Lee Hall, Washington, D. C., Immediate Treatment of Fractures.
J. Mason Hundley Jr., Baltimore, Vaginal Bleeding.
Theodore E. Woodward, Baltimore, Clinical Application of the Newer Antibiotics and Their Limitations.
Alexander J. Schaffer, Baltimore, Pediatric Emergencies.
Robert J. Coffey, Washington, D. C., Acute Surgical Abdomen.
Harvey J. Tompkins, Washington, D. C., Psychiatric Emergencies and What the Medical Man Can Do.
J. Edward Berk, Philadelphia, Treatment of Duodenal Ulcer.
Sidney Scherlis, Baltimore, Acute Cardiac Emergencies.

The registration fee will be $2, which will include the luncheon and a cocktail party to close the session. Registrations may be mailed to Alexandria Medical Society, P. O. Box 192, Alexandria.

WEST VIRGINIA

County Society Program.—The regular monthly meeting of the Kanawha Medical Society, scheduled for April 11, at the Daniel Boone Hotel in Charleston, will consist of a scientific program only, to begin at 4 p. m. Dr. John H. Mitchell of Columbus, Ohio, president-elect of the American College of Allergists, will discuss "Allergy and the Emotions." He will be followed by Dr. Leon S. Smelo, of Birmingham, Ala., speaking on "Insulin Resistance." The evening program will begin at 8 p. m., when Dr. Smelo will address an open meeting on "A Quarter Century of Diabetes" and Dr. Mitchell will discuss "Can Worry Make Me Sick?" An invitation has been extended by the medical society to all members of the West Virginia State Medical Association to attend these sessions. The public is invited to attend the evening session with members of the medical profession.

WISCONSIN

Postgraduate Clinics.—The State Medical Society of Wisconsin and the State Board of Health are presenting postgraduate teaching clinics during April and May as follows: Southern Circuit: April 25 at the Dell View Hotel in Lake Delton, April 26 at the Hotel Monterey in Janesville, April 27 at the Racine Country Club in Racine. Lecturers on the program, which begins at 1 p. m. and extends through 9 p. m., will be Drs. M. Edward Davis, Chicago; Ovid O. Meyer, Madison; Harry R. Foerster and Walter P. Blount, both of Milwaukee. Northern Circuit: May 23, Hotel Northern, in Chippewa Falls; May 24, Public Service Building, Wausau; May 25 Hotel Beaumont, Green Bay. Lecturers will be Drs. Sture A. M. Johnson and John L. Sims, Madison; Francis R. Janney, Wauwatosa, and Charles S. Rife, Milwaukee. Reservations, which include dinner, are $5. All members of the society are invited to participate.

GENERAL

Dr. Rall Wins Van Meter Prize.—The Van Meter Prize Award of the American Goiter Association was presented to Dr. Joseph E. Rall, fellow in medicine at the Mayo Foundation, Rochester, Minn., for his essay "Radioiodine in the Blood and Urine of Man." He presented the paper at the meeting of the association in Houston, Texas March 9-11.

Rumania Withdraws from WHO.—Rumania announced its withdrawal from the World Health Organization in a cable received Feburary 21 by Dr. Brock Chisholm, WHO director-general. Expressing dissatisfaction with activities carried out thus far by WHO, the cable from Bucharest follows similar action taken during the course of the past year by the USSR, the Byelorussian SSR, the Ukrainian SSR and Bulgaria. The decision of the five governments to discontinue participation in the work of WHO will be submitted to the third World Health Assembly at Geneva, May 8. WHO's constitution makes no provision for withdrawal by member governments.

Interim Meeting of Neurologists.—The American Academy of Neurology, formed in 1948, will hold its first interim meeting April 14-15 at the Hotel Netherland Plaza in Cincinnati. The academy will hold a joint symposium on psychomotor epilepsy with the American Chapter of the International League Against Epilepsy Saturday at 2 p. m. Dr. Albert Sabin, professor of research pediatrics at the University of Cincinnati College of Medicine, will speak at a luncheon meeting Friday on "Where Are We and Were Are We Going in the Investigation of Virus Diseases of the Nervous System?" Dr. Gustav Eckstein, Cincinnati, will be the banquet speaker Friday evening; his subject will be "A Visit to Pavlov in Leningrad." The Ladies' Auxiliary will meet in conjunction with the academy.

Scholars in Medical Science.—The John and Mary R. Markle Foundation has named 20 medical scientists as the third group of Scholars in Medical Science as part of a five year program to keep young doctors on teaching and research staffs of medical schools. The sum of $500,000 has been appropriated for their support, to be alloted in grants of $25,000 each at the rate of $5,000 a year to the medical schools in which they hold faculty appointments. Under the program, now in its third year, a total of 48 doctors will be aided with grants amounting to $1,200,000. The scholars were selected from candidates proposed by medical schools in the United States and Canada and interviewed by regional committees appointed by the foundation. The purpose is to afford them academic and financial security to develop at their own pace.

Book Royalties to Finance Neurological Research.—John Gunther, author of "Death Be Not Proud" has turned over part of the royalties from his book to Columbia University for research in neurologic surgery in children, and the publishers have also contributed earnings from the book to the research project. The John Gunther Jr. Memorial Fund has thus been established in the department of neurologic surgery at Columbia, where John Gunther Jr. was treated before his death in June 1947. Royalties have been given to the Hebrew University in Jerusalem also for cancer research, and another fund has been set up at the Deerfield Academy, Deerfield, Mass., where the youth was an honor student in science, to equip an infirmary laboratory and to establish a scholarship in physics. As future royalties come in, a proportionate share will be given to each of the projects.

Mental Health Week.—To focus public attention on prevention of mental illness for effective living Mental Health Week will be observed April 23-30. This year's Mental Health Week is being sponsored by a broad group of organizations headed by the National Committee for Mental Hygiene, New York; The National Mental Health Foundation, Philadelphia;

the National Institute of Mental Health, Washington, D. C.; the American Psychiatric Association, Washington, D. C., and the Junior Chamber of Commerce. National offices of mental health groups, as well as religious, governmental, welfare and other civic organizations are supplying their state and local divisions with educational materials. The Executive Committee for Mental Health Week is composed of Alberta Altman, National Institute of Mental Health; Nina Ridenour, National Committee for Mental Hygiene; William H. Savin, Massachusetts Society for Mental Hygiene, and Alex Sareyan of the National Mental Health Foundation, who is serving as temporary executive secretary for the committee.

Seminar on World Health.—The World Federation of United Nations Associations, Paris, France, has announced that a second "Seminar on World Health" to acquaint medical students and physicians with international health problems will be held in Geneva, Switzerland, May 8-19. Medical and public health specialists attending the Third World Health Assembly, which begins May 8 in Geneva, will lecture and conduct discussion groups as part of the seminar. Participants will also be given an opportunity to attend sessions of the Health Assembly and of its main committees. A similar gathering was held last year in Rome at the time of the Second World Health Assembly. Medical students and physicians interested in attending should address the World Federation of UN Associations, Education Commission, UNESCO House, 19 Avenue Kleber, Paris 16e, France.

International Cancer Congress.—The Fifth International Cancer Congress will be held in Paris, France, July 15-22 under the presidency of Dr. A. Lacassagne, Institute du Radium, Rue d'Ulm 26, Paris (5e), France. The congress is sponsored by the Union Internationale Contre le Cancer, 6 Avenue Marceau, Paris (8e) France. Edmund V. Cowdry, Ph.D., Washington University School of Medicine, St. Louis 10, Mo., is the union's vice president for the United States. The chairman of the program committee is Dr. Charles Oberling, directeur de l'Institut du Cancer, Av. Vaillant Conturier 116, Villejuif, (Seine) France. William U. Gardner, Ph.D., Yale University School of Medicine, New Haven, Conn. is a member of this committee receiving titles and abstracts of papers to be presented from the United States. No invitation to the congress is required. Those expecting to attend should promptly notify the union, pay a small registration fee and request reservation of the hotel accommodations desired.

Communicable Disease Summary.—For the week ending March 11 reported cases of influenza increased from 24,705 to 27,045, according to the U. S. Public Health Service. For the corresponding week last year 3,948 cases were reported. The five year (1945-49) median is 5,532. The cumulative total is 115,946 as compared with the corresponding total of 45,307 for 1949 and 165,882 for 1946, the highest year during the last five years. Relatively large increases were reported in Iowa (from 35 to 159), South Carolina (from 88 to 389), West Virginia (from 974 to 2,047), and Wisconsin (from 80 to 209). The 10 highest states in number of cases reported are Alabama (521), Arkansas (788), Colorado (424), Montana (1,007), Oklahoma (2,072), South Carolina (389), Tennessee (589), Texas (11,124), Virginia (6,534) and West Virginia (2,047). The total of these 10 states is 25,495. Among the other states 10 reported no cases and 3 states reported 1 case each. Reported incidence of meningococcic meningitis totaled 103 for the week as compared with 87 last week, 73 for the corresponding week of 1949 and a five year median of 90. Reported incidence of typhoid and paratyphoid fever increased from 45 to 63 cases and tularemia from 20 to 30. One case of smallpox was reported in South Dakota; 2 cases of psittacosis were reported in Steubenville, Ohio, and 1 case each of anthrax was reported in Delaware and Massachusetts.

Gordon Research Conferences.—These conferences, formerly known as the Gibson Island Research Conferences, will be held from June 26 to September 1 at the Colby Junior College, New London, N. H., on vitamins and metabolism. The conferences were established to stimulate research in universities, research foundations and industrial laboratories and are sponsored by the American Association for the Advancement of Science. Sufficient time is available to stimulate informal discussions among the members of a conference. The primary purpose of the program is to bring experts up to date as to the latest developments, analyze the significance of these developments and to provoke suggestions as to underlying theories and profitable methods of approach for making new progress. In order to protect individual rights and to promote discussion, it is an established rule that all information presented is not to be used without specific authorization of the person making the contributions, whether in formal presentation or in discussion. No publications are prepared as emanating from the conferences. The morning sessions Monday through Friday are scheduled from 9 a. m. through 12 noon. The second session of each day is held from 7:30 to 10 p. m., Monday through Thursday. There are no Friday evening meetings. Accommodations are available for a limited number of women participants and for wives who wish to accompany their husbands. Requests for such accommodations should be made at the time of the request for attendance, as they will be assigned in the order they are received. Children under twelve years of age cannot be accommodated. Applications for the conferences should be sent to the director on or before April 20. Each applicant must state the institution or company with which he is connected and the type of work in which he is most interested. Attendance at each conference is limited to 100. For additional information address W. George Parks, Director, Department of Chemistry, Rhode Island State College, Kingston, R. I. From June 20 to September 1 mail should be addressed to Colby Junior College, New London, N. H.

Annual Meeting of Pathologists and Bacteriologists.—The American Association of Pathologists and Bacteriologists will hold its annual meeting in the Auditorium of the Service Memorial Institute, University of Wisconsin Medical School, Madison, April 13-15, under the presidency of Dr. Shields Warren, Boston. Those presenting papers by invitation include:

John P. Wyatt, St. Louis, Generalized Cytomegalic Inclusion Disease.
Joseph A. Cunningham, Birmingham, Ala., Tissue Reactions Associated with Radial Inclusions in Giant Cells.
F. S. Vogel, New York, A Lipolytic Enzyme in Reactive Histiocytes of Guinea Pigs with Experimental Encephalomyelitis.
Ephraim Woll, Mr. Albert C. Dornbush, and Paul A. Little, M. S. Burlington, Vt., Morphologic and Bioassay Findings in Rous Sarcoma in Dietary or Antagonist-Induced Folic Acid Deficiency.
W. Jann Brown and Lent C. Johnson, Washington, D. C., Inflammatory Pseudotumors of the Pleura.
Gustav J. Dammin, Frank J. Dixon and Samuel C. Bukantz, St. Louis, Effect of Immunity and X-radiation on the Metabolism of I^{131} Labelled Antigenic Proteins.
Lavin L. Waters, New Haven, Conn., Changes in the Coronary and Visceral Arteries of Dogs Following Large Doses of Epinephrine.
John R. Haserick, Cleveland, Blood Factor in Acute Disseminated Lupus Erythematosus.
James C. Gale, Detroit, Electron Microscopic Studies of Collagen from Normal and Diseased Tissue.
Jerome Gross, Cambridge, Mass., Study of the Aging of Collagenous Tissue of Rat Skin with the Electron Microscope.
Samuel K. Elster, Washington, D. C., Effect of Ascorbic Acid Deficiency on the Collagen Content of Guinea Pig Tissues.
Paul Klemperer, New York, Concept of Collagen Diseases.
Murray R. Abell and James M. R. Beveridge, Ph.D., London, Ontario, Canada, Hepatic Necrosis Induced by Dietary Means.
Theodore Robertson, New York, Influence of Coronary Atherosclerosis and Myocardial Hypertrophy on the Flow Capacity of the Coronary Circulation as Determined Postmortem.
Dorin L. Hinerman, Ann Arbor, Mich., Changes in the Pancreatic Islets of Langerhans in Addison's Disease.
Wilfred E. Toreson, Montreal, Canada, Glycogen Infiltration in the Pancreas in Experimental and Human Diabetes Mellitus.

The annual dinner will be held at the Loraine Hotel Friday at 7 p.m. The International Association of Medical Museums, meeting at the medical school on April 13, is invited to attend.

CORRECTION

Deformities in Rheumatoid Arthritis.—In the abstract of the discussion by Dr. Robert L. Preston in THE JOURNAL, March 11, page 719, in the thirteenth line from the bottom of this discussion the word "fibula" is erroneous and should have been "tibia." In the seventh line from the bottom of Dr. Preston's discussion the word "patellar" should have been "passive."

Marriages

JOSEPH FRANCIS MORABITO, Massillon, Ohio, to Miss Catherine Marie Mihala in Bethlehem, Pa., in January.

ROY HAMILTON OTT JR., White Plains, N. Y., to Miss Elizabeth Marie Jones in Forest Hills, February 11.

JOHN THOMAS CRAIGHEAD, Denver, to Miss Mary Holloway Fulton of Greenwich, Conn., February 11.

NATHANIEL DAVID YINGLING, Clearfield, Pa., to Miss Ada Ruth Howe in Philipsburg, February 11.

GEORGE D. BLYDENBURGH, Delaware, Ohio, to Miss Jinx Lentsoehr of Milwaukee, January 16.

ALANSON HINMAN, Baltimore, to Miss Al[illegible] Frazer Williams of Rockville, Md., January 28.

FRANCISCO A. MOLINA, Havana, Cuba, to Miss Sara Doyle of Chicago, September 6.

HAROLD KORNER to Miss Sonia Sandberg, both of Brooklyn, February 12.

Deaths

Ralph Hayes Hofler ● Medical Director, Captain, U. S. Navy, retired, Washington, D. C.; born in Gatesville, N. C., July 2, 1899; University of Maryland School of Medicine, Baltimore, 1925; entered the naval service as a lieutenant (jg) and served his internship at the Naval Hospital in Portsmouth, Va.; had duty on board the *USS Arkansas, McFarland, Kanawah* and the *Enterprise*, and served one year with the Civilian Conservation Corps; in January 1942 was retired for physical disability; requested that he be retained on active duty and was assigned to the office of Naval Officer Procurement in Washington; in 1943 was transferred to the Naval Dispensary, Naval Department, Washington, D. C., as senior medical officer of the Arlington Annex Branch, where he remained until his hospitalization late in 1949; died February 12, aged 50, of rupture of the aorta.

Herbert Dodge Pease, Richmond Hill, N. Y.; born in Boston Oct. 25, 1870; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1893; resident pathologist for the Thomas Wilson Sanitarium for Children in Baltimore in 1894; first assistant bacteriologist, department of health in Philadelphia from 1895 to 1898; bacteriologist for the New York State Pathological Laboratory in Buffalo from 1898 to 1900; instructor in bacteriology at the Sheffield Scientific School, Yale, in 1901; director of the antitoxin hygienic laboratory, state department of health in New York from 1901 to 1909; director of the Lederle Laboratories from 1909 to 1918; member of the American Association of Pathologists and Bacteriologists and the Society of American Bacteriologists; died in Springfield, Mass., February 14, aged 79, of cerebral thrombosis and general arteriosclerosis.

Archibald Alexander Barron ● Charlotte, N. C.; born in York County, S. C. Nov. 4, 1886; Vanderbilt University School of Medicine, Nashville, Tenn., 1909; specialist certified by the American Board of Psychiatry and Neurology, Inc., and the American Board of Internal Medicine; member of the Southern Psychiatric Association and American Psychiatric Association; fellow of the American College of Physicians; past president of the North Carolina Neuropsychiatric Association; served during World War I; member of the board of the Mental Hygiene Society of Charlotte; affiliated with Mercy Hospital, Presbyterian Hospital and Memorial Hospital, where he died February 8, aged 63, of coronary occlusion.

Charles Ten Eyck La Moure, Windham, Conn.; born in Albany, N. Y., March 29, 1872; Albany (N. Y.) Medical College, 1894; member of the American Medical Association; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; councilor of the Seventh District of the Connecticut State Medical Society; formerly superintendent of the Mansfield State Training School and Hospital in Mansfield Depot and the Gardner (Mass.) State Colony; served on the staff of the Rochester (N. Y.) State Hospital; died February 16, aged 77.

Aubrey Crafton Goss ● Memphis, Tenn.; Duke University School of Medicine, Durham, N. C., 1937; formerly assistant professor of pathology at the University of Tennessee College of Medicine; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; served during World War II; formerly affiliated with the U. S. Marine Hospital and Methodist Hospital; died in Hughesville, Ark., February 8, aged 37, of an accidental gunshot wound.

Howard Nelson Kingsford ● Hanover, N. H.; born in Providence, R. I., in 1871; Dartmouth Medical School, Hanover, 1898; professor of pathology and bacteriology emeritus at his alma mater, where he became professor in 1901 and held that position until 1941 when he retired; served as chairman and president of the state board of registration in medicine; formerly medical director at Dartmouth College; affiliated with the Mary Hitchcock Memorial Hospital; died February 9, aged 78, of carcinoma of the prostate with metastases.

Samuel Harbourne Baldwin, South Orange, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; veteran of the Spanish-American war; member of the American Medical Association; for many years affiliated with the Newark Eye and Ear Infirmary; died in Lutheran Memorial Hospital, Newark, January 23, aged 78.

● Indicates Fellow of the American Medical Association.

John Carrer Barton, Washington, D. C.; University of Minnesota Medical School, Minneapolis, 1935; member of the Minnesota State Medical Association, American Psychiatric Association and the American Medical Association; certified by the National Board of Medical Examiners; served during World War II; medical consultant to the claims service of the Veterans Administration; died in Mount Alto Hospital February 12, aged 43.

Alfred Bornmann ● Brooklyn; New York Homeopathic Medical College and Hospital, New York, 1899; on the staffs of the Carson C. Peck Memorial, St. John's and Methodist hospitals; died February 8, aged 71, of coronary thrombosis.

Andrew Callahan ● Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; served as assistant professor of medicine at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; on the staffs of Philadelphia General and Rush hospitals; died February 17, aged 75, of coronary occlusion.

Emmett Grady Causey, Cassville, Mo.; University of Louisville (Ky.) School of Medicine, 1932; member of the State Medical Association of Texas and the American Medical Association; served during World War II; died in the Veterans Administration Hospital, Fayetteville, January 25, aged 47.

William Gay Christian, Barboursville, Va.; University of Virginia Department of Medicine, Charlottesville, 1889; formerly professor of the descending anatomy at the Medical College of Virginia in Richmond; author of "Textbook of Anatomy for Nurses" and "Textbook of Physiology for Nurses"; died January 21, aged 87.

Dallis Lowell Cornwell ● Brownsville, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; served during World War I; died January 28, aged 61, of coronary occlusion.

Thomas Arthur Coyne, Assumption, Ill.; Loyola University School of Medicine, Chicago, 1923; member of the American Medical Association; served in the Spanish-American War and the Philippine Insurrection; died in Huber Memorial Hospital, Pana, February 7, aged 70.

Aloysius A. Daly, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1917; member of the American Medical Association; died February 17, aged 62, of coronary thrombosis.

Van Cleft Decker, Nicholson, Pa.; Jefferson Medical College of Philadelphia, 1896; member of the American Medical Association; past president of the Wyoming County Medical Society; served during World War I; for many years associate judge in Wyoming County and president of the school board of Nicholson; served as president of the Factoryville Bank; past president of the Rotary Club; died in Moses Taylor Hospital, Scranton, February 4, aged 80, of a skull fracture received in a fall.

Herbert Sperry DuCret, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1912; member of the American Medical Association; served on the staffs of the Carson C. Peck Memorial and Cumberland hospitals; an officer in the U. S. Army and British Army during World War I; awarded the Purple Heart Medal and the British Military Cross; died in Tucson, Ariz., February 27, aged 61.

Joseph Marion Dowis, Dallas, Texas; University of Texas School of Medicine, Galveston, 1926; member of the American Medical Association; at one time taught preventive medicine at Southwestern University Medical College; epidemiologist for the city health department for many years; director of the outpatient clinic, Parkland Hospital; died February 10, aged 48, of coronary occlusion.

William Henry Durkee, Fulton, Ill.; Keokuk (Ia.) Medical College, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the American Medical Association; past president of the Whiteside County Medical Society; for many years member and for a time president of the board of education; died February 4, aged 82, of bronchopneumonia.

John Gillman Dwyer ● Cullom, Ill.; Chicago College of Medicine and Surgery, 1913; died in Mercy Hospital, Urbana, in February, aged 57, of carcinoma of the lung.

Edward Raymond Easton ● New York; Columbia University College of Physicians and Surgeons, New York, 1915; fellow of the American College of Surgeons; a medical officer in the army during World War I; served on the staffs of St. Clare's, Knickerbocker and St. Vincent's hospitals; died in the Beekman-Downtown Hospital February 3, aged 57, of cerebral hemorrhage.

Garland Augustus Ellis, Stamps, Ark.; Meharry Medical College, Nashville, Tenn., 1912; died January 15, aged 62.

Guy David Engle ● Wilkinsburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; died February 6, aged 73, of coronary occlusion.

Peter Edward Fagan, Hazleton, Pa.; Jefferson Medical College of Philadelphia, 1909; member of the American Medical Association; served during World War I; medical examiner for the city schools; died in Hazleton State Hospital February 17, aged 66, of cardiac failure.

Aaron Grant Fairfax, Chicago; Illinois Medical College, Chicago, 1910; member of the American Medical Association; died February 23, aged 70.

Frederick William Fiedler, Memphis, Tenn.; University of Tennessee Medical Department, Memphis, 1913; associate professor of surgery at his alma mater; member of the American Medical Association; fellow of the American College of Surgeons; an officer during World War I; served on the staffs of the Baptist Memorial Hospital, John Gaston Hospital and the Gartly-Ramsay Hospital, where he died January 24, aged 62, of coronary occlusion.

Frank Foncannon ● Emporia, Kan.; University of Pennsylvania School of Medicine, Philadelphia, 1914; fellow of the American College of Surgeons; affiliated with St. Mary's Hospital and the Newman Memorial County Hospital, where he died February 1, aged 60, of coronary occlusion.

Stanley Leopold Freeman ● Kingston, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1910; fellow of the American College of Surgeons; formerly on the staff of the Wilkes-Barre (Pa.) General Hospital; died in New York February 22, aged 60, of coronary thrombosis.

Theron Earle Fuller ● Texarkana, Texas; Vanderbilt University School of Medicine, Nashville, 1908; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the Arkansas Medical Society, American Academy of Ophthalmology and Otolaryngology and American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; affiliated with Texarkana Hospital; died February 1, aged 65, of coronary occlusion.

Samuel Howard Garst ● Staunton, Va.; University of Virginia Department of Medicine, Charlottesville, 1931; fellow of the American College of Surgeons; past president of the Augusta County Medical Society; affiliated with King's Daughters Hospital, where he died February 7, aged 43, of coronary thrombosis.

William Rion Gibbs ● Buffalo, S. C.; Medical College of the State of South Carolina, Charleston, 1929; died in the Charlotte (N. C.) Memorial Hospital February 5, aged 44, as the result of injuries received in a fall.

Edgar Giles, Avalon, Miss.; University of Nashville (Tenn.) Medical Department, 1908; member of the American Medical Association; died January 17, aged 67, of coronary thrombosis.

William Wendell Hale ● Monroe, N. Y.; University of Maryland School of Medicine, Baltimore, 1905; formerly associate professor of pathology at the Long Island College of Medicine; specialist certified by the American Board of Pathology; served on the staffs of the Caledonian, Carson C. Peck Memorial and Bushwick hospitals, all in Brooklyn; died February 11, aged 65.

Robert Henry Harrison, Houston, Texas; University of Texas School of Medicine, Galveston, 1898; local surgeon for the Southern Pacific Railroad; died in Hermann Hospital February 3, aged 73, of cerebral hemorrhage.

Wilbur James Hawkins Jr. ● Fredericktown, Pa.; Jefferson Medical College of Philadelphia, 1933; served during World War II; died January 23, aged 43.

Cyrus Eugene Hawks ● Rockville, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921; fellow of the American College of Chest Physicians; affiliated with Doctors, Georgetown University and Sibley Memorial hospitals in Washington, D. C., Montgomery County General Hospital in Olney, Suburban Hospital in Bethesda and Maryland General Hospital, Baltimore; died December 16, aged 57, of intestinal obstruction.

Simeon Louis Hebert, Manchester, N. H.; University of Vermont College of Medicine, Burlington, 1926; member of the American Medical Association; served during World War II; affiliated with Notre Dame de Lourdes Hospital; died January 17, aged 49, of cerebral hemorrhage.

Max F. Herrman ● Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1902; affiliated with St. Joseph's and Jewish hospitals; died February 8, aged 68, of coronary thrombosis.

Joseph Carbaugh Hess, Philadelphia; Jefferson Medical College of Philadelphia, 1924; member of the American Medical Association; served during World War I; affiliated with the Graduate Hospital, American Hospital for Diseases of the Stomach, Doctors and Episcopal hospitals; died February 4, aged 56, of carcinoma of the pancreas.

Thomas R. Holland ● Washington, D. C.; Medico-Chirurgical College of Philadelphia, 1911; affiliated with the Veterans Administration; died in Emergency Hospital February 4, aged 61, of acute congestive heart failure.

Robert Browne S. Ishmael, Winchester, Ky.; Kentucky School of Medicine, Louisville, 1897; president of the Peoples State Bank and Trust Company; died January 5, aged 73, of cerebral hemorrhage due to chronic lymphatic leukemia.

Roy Ross Jamieson ● Chicago; Northwestern University Medical School, Chicago, 1913; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; associate in medicine at his alma mater; served during World War I; affiliated with Jackson Park Hospital; died in St. Luke's Hospital February 24, aged 68, of coronary thrombosis.

Oliver Anderson Jeffreys, Huntington Park, Calif.; Rush Medical College, Chicago, 1905; died in Los Angeles January 20, aged 68, of coronary thrombosis.

Louis Matthew Kane ● Los Angeles; Northwestern University Medical School, Chicago, 1912; fellow of the American College of Surgeons; on the associate staff of California Hospital; on the active staff of St. Vincent's Hospital, where he died February 8, aged 65, of myocardial infarction.

Joseph Wesley Kimberlin, St. Petersburg, Fla.; University Medical College of Kansas City, Mo., 1900; specialist certified by the American Board of Ophthalmology; in 1923 member of the House of Delegates of the American Medical Association; served during the Spanish-American War and World War I; formerly practiced in Kansas City, Mo.; died in the Veterans Administration Hospital, Bay Pines, February 1, aged 76.

Francis Gerald King ● Quincy, Mass.; Georgetown University School of Medicine, Washington, D. C., 1930; member of the New England Obstetrical and Gynecological Society; served during World Wars I and II; died in Massachusetts Memorial Hospital, Boston, February 8, aged 49.

William James Charles Lamb, Homestead, Pa.; University of Southern California College of Medicine, Los Angeles, 1896; Georgetown University School of Medicine, Washington, D. C., 1903; died February 6, aged 83.

William Henry Lange, Chicago; Loyola University School of Medicine, Chicago, 1919; member of the American Medical Association; on the staff of Bethany Hospital; died December 1, aged 57.

Leslie Mac Lisle ● Columbus, Ohio; Starling Medical College, Columbus, 1902; on the staff of Mount Carmel Hospital; died December 12, aged 72, of Hodgkin's disease.

Marcy Joseph Lyons ● New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1914; member of the American Association of Industrial Physicians and Surgeons; co-director of the medical department of the New Orleans Public Service; affiliated with the Southern Baptist Hospital and Hotel Dieu, Sisters' Hospital; died February 3, aged 59, of congestive heart failure.

Kenneth Ewing McCamey, Paterson, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916; served on the staff of St. Joseph Hospital; for many years medical examiner for the Metropolitan and Prudential Life Insurance companies; died in Fort Lauderdale, Fla., January 26, aged 56, of coronary occlusion.

Earle Francis McGrath ● Appleton, Wis.; Milwaukee Medical College, 1912; member of the Radiological Society of North America; died in Seabright, Fla., February 3, aged 61.

George W. McMillen, Covington, Ky.; Kentucky School of Medicine, Louisville, 1894; died in St. Elizabeth Hospital January 8, aged 80, of bronchopneumonia.

Byron William Marshall ● Phoenix, Ariz.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; at one time practiced in Gary, Ind.; died February 9, aged 72, of uremia and arteriosclerotic cardiovascular renal disease.

Paul Daniel Michelson Jr., San Francisco; College of Physicians and Surgeons of San Francisco, 1920; member of the American Medical Association; served during World War I; affiliated with St. Joseph's Hospital; died January 1, aged 56, of coronary occlusion.

Jack Beals Moore ● Fresno, Calif.; Stanford University School of Medicine, San Francisco, 1928; served in the medical corps of the Army during World War I, a member of the county board of health; died February 19, aged 53, of heart disease.

Laurence Moses Moore, Benton, Ill.; University of Illinois College of Medicine, Chicago, 1930; member of the American Medical Association; served during World War II; died in Moore Hospital February 8, aged 48.

Ruth Lillian Popp Mosch, Coudersport, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1946; member of the American Medical Association; on the staff of Potter County Memorial Hospital; died in February, aged 27.

Roy Adelbert Morse, Tacoma, Wash.; University of Colorado School of Medicine, Denver, 1913; served during World War I; member of the American Medical Association; died recently, aged 60.

Edward Muentzer, San Francisco; Indiana University School of Medicine, Indianapolis, 1942; was found murdered February 18, aged 38.

John Christian Muth ● Yonkers, N. Y.; University and Bellevue Hospital Medical College, New York, 1912; fellow of the American College of Surgeons; served during World War I and later with the Army of Occupation in Germany; affiliated with Yonkers General Hospital and St. John's Riverside Hospital; medical director of the Westchester Lighting Company; died January 31, aged 60, of coronary thrombosis.

Sam Percy Myer, Louisville, Ky.; Hospital College of Medicine, Louisville, 1900; member of the American Medical Association; affiliated with Norton Memorial Infirmary; died in the Kentucky Baptist Hospital January 28, aged 77, of coronary occlusion.

Frank Louis Nathanson, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; died February 13, aged 68, of chronic myocarditis.

Walter Willard Nauth, Winona, Minn.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1907; died in Sarasota, Fla., February 22, aged 66, of coronary occlusion.

John William Neely, Spearman, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1921; member of the American Medical Association; died in Snyder January 20, aged 52, of endocarditis.

Eugene Phillips Neitz, Wellsville, Ohio; Ohio State University College of Homeopathic Medicine, Columbus, 1915; member of the American Medical Association; served during World War I; city council president for two years; city health commissioner; affiliated with the East Liverpool (Ohio) City Hospital, where he died February 7, aged 59, of heart disease, after a knee cap fracture suffered in a fall January 19.

Norman William Neptune, Loudonville, Ohio; Jefferson Medical College of Philadelphia, 1903; died January 16, aged 80, of carcinoma of the prostate.

Cobb Nichols, Jackson, Ala.; Medical College of Alabama, Mobile, 1899; member of the American Medical Association; past president of the Clarke County Medical Society; veteran of the Spanish-American War; died in Mobile, Ala., February 3, aged 80.

James Kindred Norman, Fort Worth, Texas; University of Arkansas School of Medicine, Little Rock, 1940; member of the American Medical Association and the American College of Physicians; specialist certified by the American Board of Internal Medicine; served with the U. S. Public Health Service during World War II; on the staffs of the Harris Memorial Methodist Hospital, City-County Hospital and St. Joseph's Hospital; died January 31, aged 33.

Byron Hicklin Paslay, Como, Miss.; Kentucky School of Medicine, Louisville, 1906; member of the American Medical Association; formerly surgeon of the state penitentiary; died in Columbus February 13, aged 72.

Joseph Petluck, New York; Tufts College Medical School, Boston, 1898; associated with the Harlem, Bronx, Fordham and Mount Sinai hospitals; died in Lebanon Hospital February 17, aged 80, of myocardial infarction.

Harold Brabazon Plunkett, Lowell, Mass.; Kentucky University Medical Department, Louisville, 1906; member of the American Medical Association; affiliated with Lowell General and St. Joseph's hospitals; since 1935 on the staff of the Tewksbury (Mass.) State Hospital, where he died February 10, aged 72, of adenocarcinoma of the large intestine.

Fannie Dunn Quain ● Bismarck, N. D.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; past president of the North Dakota Department of Public Health; died February 2, aged 75, of coronary thrombosis.

Simon Harry Ratner, Miami Beach, Fla.; University of Pittsburgh School of Medicine, 1912; member of the Medical Society of the State of Pennsylvania; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; formerly practiced in Pittsburgh, where he served on the staff of Montefiore Hospital; died February 10, aged 59, of acute coronary occlusion and cerebral hemorrhage.

James Walter Reeves ● Los Angeles; College of Physicians and Surgeons, Los Angeles, 1913; fellow of the American College of Surgeons; for many years professor of anatomy and physiology at the University of Southern California School of Dentistry; on the staff of California Hospital; died in St. Luke's Hospital January 28, aged 64.

David Martin Rettinger, Stockton, Ill.; Chicago Medical School, 1945; died in St. Francis Hospital, Freeport February 2, aged 29, of injuries received in an automobile accident.

Robert Peter Roantree ● Elko, Nev.; Washington University School of Medicine, St. Louis, 1919; president of the state board of medical examiners; past president of the Nevada State Medical Association; fellow of the American College of Surgeons; affiliated with Elko General Hospital; died February 21, aged 54, of coronary occlusion.

Edwin P. Rohrbaugh, Casper, Wyo.; University of Maryland School of Medicine, Baltimore, 1881; died January 23, aged 91, of hypostatic pneumonia and cerebral hemorrhage.

Thomas Jerome Rubino, Brooklyn; Fordham University School of Medicine, New York, 1921; member of the American Medical Association; affiliated with St. Vincent's Hospital; died February 3, aged 51.

Bemon Creighton Scarbrough, Albertville, Ala.; University of Tennessee College of Medicine, Memphis 1911; member of the American Medical Association; medical superintendent and owner of the Sand Mountain Infirmary; died January 17, aged 64, of coronary thrombosis.

Stewart Seibert Shaffer ● Mount Wilson, Md.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; member of the American College of Chest Physicians and the American Trudeau Society; for many years superintendent of the Mount Wilson Branch Maryland Tuberculosis Sanatorium; died January 28, aged 57, of hypertension and cardiovascular disease.

Vaughn Lee Sheets ● Chicago; Chicago College of Medicine and Surgery, 1903; an Associate Fellow of the American Medical Association; fellow of the American College of Physicians; at one time on the faculty of his alma mater; formerly affiliated with the Frances E. Willard Hospital; died in St. Francis Hospital, Evanston, February 2, aged 80, of adenocarcinoma of the prostate.

M. Maxim Steinbach ● New York; Long Island College Hospital, Brooklyn, 1916; member of the New York Academy of Medicine, New York Academy of Science and the Society of American Bacteriologists; research associate in bacteriology at Columbia University College of Physicians and Surgeons; affiliated with Montefiore Hospital; member of the medical board of the Hebrew Convalescent Home; died February 1, aged 60, of cancer.

John B. Stetson, Seattle; Medico-Chirurgical College of Philadelphia, 1896; member of the American Medical Association; died in Doctors Hospital January 31, aged 78.

Dave S. Stewart, Creston, W. Va.; Louisville (Ky.) Medical College, 1884; died February 1, aged 101.

Harry John Stewart ● Oak Park, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; fellow of the American College of Surgeons; affiliated with the West Suburban Hospital, where he died February 15, aged 75, of acute hypostatic congestion of the lungs and myocardial degeneration.

Jacob Visser, Tacoma, Wash.; Bennett Medical College, Chicago, 1890; died January 30, aged 79.

John Lane Walker, Wartrace, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; died recently, aged 78.

Foreign Letters

STOCKHOLM

(From a Regular Correspondent)

Feb. 15, 1950.

Mass Radiography in Sweden

Since 1941 there has been a rapid extension of the use of mass radiography in Sweden. Much of the credit for it is due to the Swedish National Association against Tuberculosis. In 1946 on the urgent recommendation of the health authorities the Swedish Parliament decreed that mass radiography should be available for everyone beyond the age of 10 years on a voluntary basis and free of cost. This scheme was to have been completed in five years, with one fifth of the nation examined every year. However, force of circumstances has extended this five year plan over eight years.

In his report on this scheme, Dr. Arne Nelson of Stockholm points out how its efficiency has depended on centralization, with the examination of roentgenograms at headquarters, where six medical experts are employed to interpret them. During the first year of the scheme, 1.4 per cent of the roentgenograms sent to headquarters were technically faulty. This figure was reduced to 0.7 per cent in the second year, and even this modest percentage has in all probability been still further reduced. The mass radiography units in the field do not include doctors; a mobile unit or mass radiography patrol consists of a nurse, a technician, a chauffeur and a secretary. In theory such a patrol can deal with about 500 cases a day except on the days when a unit is moving elsewhere, when this figure is reduced to about 400. Even this figure is apt to be an overestimate because the country is so thinly populated.

Since this scheme was put into force, on July 1, 1946, about 1.5 million persons have been examined; appreciation of its benefits has been so great that in one county in which these examinations have been completed, 96.7 per cent of the persons summoned for examination have undergone it. About 4 per cent of the persons first examined have been referred for further examination at a tuberculosis dispensary, and many nontuberculous intrathoracic lesions have been discovered, including tumors in 0.03 per cent.

Prospective Legislation against Quackery

In spite of the legislation of 1915 defining and limiting the right to practice medicine in Sweden, quackery recently has become so prominent that Richard Lindström proposes to submit the draft of a new law on this subject to the Swedish Parliament. The lay press has often taken a strong stand against abuse by advertisements. It also has often done yeoman service in educating the public in this field. Yet the urge to substitute superstition for reason when doctors cannot provide an effective cure is amazingly deep rooted and widespread.

The legislation of 1915 restricted the treatment of certain diseases to fully qualified doctors. It is a punishable offense to take money for the treatment of the venereal diseases, tuberculosis, cancer and certain infectious diseases. The unqualified practitioner may not give hypnotic treatment or administer a general anesthetic. And, in general terms, he may not undertake treatment involving danger to the life or health of his victims. To be a fully qualified doctor it is necessary to be a Swedish citizen and to have passed the necessary examinations.

In 1941 the Swedish public health authorities issued a memorandum in which the draft of a new law for the practice of medicine was outlined. A modified form of this draft may be endorsed by Parliament and become law. It proposes that the number of diseases and treatments hitherto reserved for the care of fully qualified doctors should be enlarged to include diabetes, among other diseases. The ban on hypnotic treatment may be extended to psychoanalysis, and the ban on general anesthesia to local anesthesia. Furthermore, the layman may no longer be free to tamper with the insane, the mentally defective or persons under the age of 18. Advertising may be forbidden for the quack and the title of doctor protected; such terms as "nature healer" and "skin healer" may be prohibited. It is also proposed that chiropractic, homoeopathy and eye or iris diagnosis are to be stamped as quackery.

The Obese Child

A recent study by Dr. Per Selander of the obese child points out that in Sweden everyone is fatter and taller than fifty years ago. At the present time a Swedish boy 12 years of age is 17 cm. taller and weighs 12 Kg. more than his counterpart half a century ago; this is due to a radical change in the nation's dietary. Recent world wars have shown how dietetic restrictions affect growth. But Dr. Selander admits that the overly fat child is in need of special attention. He is often an only child or the last child, the darling of his mother, who loves to stuff him and to make him more dependent than ever on her as he becomes more and more shunned by his less corpulent playmates. Heredity plays an important part, and psychic disturbances may precipitate this condition—as may many of the infectious diseases. It is a common mistake to assume that hypofunction of the reproductive organs is to blame, and one may make this mistake by expecting the size of testicles to correspond to the outsize of the child. As Dr. Selander drily remarks, "it is very difficult, if it is ever possible, to demonstrate hypofunction of the gonads before the normal age of puberty is reached." He adds as a minor detail a warning with regard to the risk that the overly fat child may become flat-footed because of his weight.

BELGIUM

(From a Regular Correspondent)

Feb. 4, 1950.

Medical Meetings in Antwerp

For the fourth time the medical days (meetings) have been held in Antwerp with great success. They were attended by numerous practitioners from Antwerp and other parts of Belgium. Important medical personalities from other countries participated in the session. Dr. Ronald Jarman, president of the Section of Anesthesia of the Royal College of Medicine of London, England, gave a demonstration on anesthesia. The scientific meetings were held in the civilian hospitals and in the military hospital, where Captain of Medicine Raedemaeker presented a study on periodic paralysis illustrated by a motion picture on epilepsy and its treatment in the light of recent scientific advances. Dr. De Winter of Bruges presented part of his experience on the basis of twenty years in the practice of thoracoplasty in a total of 1,150 cases. Finally, Professor D'Hons of Lille, France, spoke on the early diagnosis of pulmonary cancer.

Kernicterus

The Belgian Society of Neurology and the Society of Mental Hygiene of Belgium held a common meeting which was concerned with the study of kernicterus (nuclear icterus). Hubinont explained the connection between the pathogenesis of kernicterus and maternal isoimmunization and hemolytic disease of the newborn. Then Gerard presented a series of projections on livers, spleens and kidneys obtained from infants who died of severe icterus, accompanied or not with kernicterus, and fetal placental edema; he demonstrated anatomicopathologic modifications of the liver, spleen and kidney in the course of hemolytic disease of the newborn.

The anatomicopathologic study of kernicterus was presented by Dereymaeker, who showed that (*a*) histologic lesions occur in the neural tissues in all cases of grave familial icterus whether or not the clinical syndrome shows neurologic involvement, an observation confirming the great frequency of cerebral changes;

(*b*) parenchymal lesions of the nerves are not dependent on the presence of icteric pigment; the nervous changes predominate and they exist in the absence of any abnormal pigmentation, and (*c*) a systematic topography of icterus and neural changes does not exist. The intensity of cerebral destructions varies from one case to another and is usually maximal in the paleostriatum and the neostriatum in the floor of the fourth ventricle, the olive of the medulla oblongata and the nucleus dentatus of the cerebellum.

The etiologic role of isoimmunization in kernicterus is proved by experimental reproduction of the disease in rats and dogs and by the histologic demonstration of these nervous lesions. Within the sphere of severe familial icterus no known factor outside of an immunologic reaction can explain the appearance of central nervous lesions. At best one can attribute an aggravating role to prematurity and perhaps also to hepatic dysfunction. The antibodies may change the hematoencephalic barrier; then they many penetrate into the nervous parenchyma and carry along other substances, such as bilirubin.

Quinine in the Belgian Congo

Bruxelles-médical, the important Belgian medical journal has always advocated the cultivation of quinine in the Belgian Congo. In a recent issue this publication gives an account of the activity of Stoffels, professor of colonial phytotechnics at the Agricultural Institute of Gembloux. In the Congo Stoffels is called "the father of quinine." He has been one of the key workers in the station at Nulungu Tsibunda. He fostered the cultivation of quinine and pyrethrum, and he succeeded in this effort because of his efforts for the improvement of the coffee plantations of Kivu. For about ten years he failed to convince the colonial planters of the need for quinine cultivation and to interest them in this plant with its difficult, specialized and unpredictable cultivation problems. In the course of the war the Japanese occupation of the Netherlands Indies, the established center of the cultivation of quinine, drew the attention of the allies to the cultivation of quinine in the Congo. Although at that time the cultivation had not reached the development which it has reached now, it could help the allied armies which operated in Burma. Not only is Kivu admirably suited for the cultivation of quinine, pyrethrum and Mocha arabica, but its subtropical climate suggests the possibility of introducing and cultivating plants for the preparation of perfume and certain varieties and species of medicinal plants which will bring excellent returns.

Acrylic Prosthesis in Coxitis

Judet of Paris presented to the Belgian League Against Rheumatism the results which he obtained in the treatment of coxitis with an acrylic prosthesis. He points out that the operation of Whitman (resection of the head of the femur) in the surgical treatment of coxitis is effective against the pain, but the functional results are seldom satisfactory (rigidity and shaking of the joint). To obviate these shortcomings Judet replaces the head of the femur by a plastic (acrylic) prosthesis which caps the cervical stump. He has applied the same technic in cervical pseudoarthrosis in congenital dislocation of the hip joint and in coxofemoral ankylosis resulting from rhizomelic spondylitis. To date 175 patients with coxitis have had operative treatment: in 40 per cent the results have been excellent, 40 per cent have been improved 80 to 90 per cent and in the remaining 20 per cent the improvement has been less than 80 per cent. No cases of intolerance to the plastic material have been encountered.

Antimalarial Laboratory in the Congo

A laboratory for the study of the transmission of malaria between mosquitoes and mammals has been established on the high plateaus of Kundelungu (Katanga). This laboratory belongs to the section of antimalarial studies and research of Elisabethville.

MADRID

(From a Regular Correspondent)

Feb. 1, 1950.

Endocrinology and Growth

Dr. G. Marañon, for more than forty years head of a Department of Endocrinology in Madrid, reviewed the progress of this study in a series of lectures at the Institute of Pathologic Medicine of Madrid. He discussed the influence of environment and genetic factors on the process of growth.

Growth may be differentiated into (1) somatogenetic, or growth in volume of the soft tissues, and (2) morphogenetic, or growth in length of skeletal structures. Morphogenetic growth is controlled by the pituitary hormones, while the thyroid, gonads and adrenals combine to influence somatic growth. In the embryo, however, somatic growth is also influenced by trophic factors from other endocrine glands, including the thymus, pineal body, pancreas and spleen. The hypothalamus provides neurogenic control of the activity of the pituitary, thyroid, gonads and adrenals. Environmental factors of importance to growth are adequate sunlight and oxygen, proper nutrition, prevention of disease and maintenance of satisfactory living conditions. These factors help to maintain normal physical development by insuring proper nutrition and function of the endocrine system.

Infantilism may be caused by genetic, endocrine, hypothalamic and exogenic factors. It is more serious in the prepuberal age than in adolescents. The condition is always associated with changes in the hypophysis, possibly influenced by nutrition and environment. Inadequate growth is classified as (1) dwarfism with infantilism or (2) dwarfism without infantilism. The first type is pituitary in origin, while the second may be due to hypergonadism or osseous dyscrasias such as achondroplasia. Gigantism may begin in youth because of hypophysial hyperfunction and may or may not be associated with eunuchoidism and acromegaly.

The chronologic relationships of puberty to sexual development were described by the lecturer as follows: In boys at the age of 12 years the crisis of growing begins. Morphogenetic growth occurs, but the body is of indefinite sexual type. At 14 years of age puberal hair growth of feminoid type begins, and between ages 14 and 15 muscular and thoracic development takes place. At 15 years of age the voice begins to change and axillary hair appears. At age 16 the crisis of genital development occurs. Between 17 and 18 years the beard begins growth. In girls puberty occurs two years earlier. At 10 years of age the crisis of morphogenetic growth begins. Between the eleventh and twelfth years breast development and increased amplitude of the pelvis are noted. At age 12 puberal hair growth of the typical feminoid type occurs. At 13 years axillary hair develops. Between 13 and 14 years of age menstruation begins and becomes established. Between 15 and 17 years there is complete development of feminine morphology and psychology. In boys there is an intersexual period between the early appearance of puberal phenomena and the establishment of puberty, while in girls an intersexual period does not occur at puberty although something similar to intersexuality occurs at the menopause.

There are certain clinical forms of precocious puberty, with or without macrogenitosomia. These are constitutional, pituitary, pineal and hypothalamic. They are clinically indistinguishable. Hypothalamic precocious puberty is characterized by macrogenitosomia, skin dyschromia and motor disorders of the cataplegic type. The adrenocortical type of precocious puberty corresponds to Pende's "matronism" and is the form most frequently seen in children. Disturbances of sexual definition in girls may be pseudohermaphroditism, virilism and tendency to homosexuality; in boys, pseudohermaphroditism, cryptorchism, gynecomastia and also a tendency to homosexuality. Moral and pedagogic influences are of great importance in

the puberal age, since there is no efficacious treatment of the constitutional and hypothalamic forms of sexual disorders. The pituitary, adrenocortical and gonadal forms of early puberty or delayed puberty are amenable to endocrine or surgical treatment. In surgical treatment of virilism total extirpation of the affected adrenal gland is advocated, because remnants may become hypertrophic and cause a continuation of the clinical phenomena. Homosexuality in both sexes is occasionally amenable to psychotherapy. Pseudohermaphroditism may be benefited by plastic operations. Cryptorchism is benefited by endocrine and surgical treatments. Effective therapy for gynecomastia is unknown.

From a clinical point of view, growth and metabolism are interrelated. The hormonal substances which control growth, also control hunger and thirst. Hormonal disorders are the etiologic factors of either obesity or thinness in children. The two are adaptations of the body to metabolic disorders due to which certain physiologic needs are not satisfied. The administration of neither thyroid nor insulin, with the aim of causing either loss or gain of weight, is indicated, because the conditions are usually due to endogenous causes.

Obesity in children is either the plethoric or the asthenic (the genital adipose) type. In the asthenic type there is delayed puberty, pallor and an aspect of femininity. Fröhlich's syndrome is the hypothalamic form and is associated with dystrophy and general adiposis. A transient adipose genital syndrome occurs which is hypothalamic and hypophysial in origin and results in short stature. Another transient adipose genital syndrome of predominantly genital origin results in high stature. The Laurence-Moon-Biedl syndrome is another example of the asthenic genital adipose type of obesity. Plethoric obesity may appear in any of the following clinical forms: obesity with hypophysial basophilism (glycosuria, hyperglycemia, hypercalcemia, cyanotic striation and other signs of Cushing's syndrome); obesity of hyperadrenocortical type with polyphagia and virilism; obesity of the Gallais type, which is more plethoric than Cushing's syndrome, without hyperchondroplasia but with a great tendency to hypertension.

The main clinical types of asthenia in relation to growth are: pituitary asthenia resembling Simmonds' disease; anorexia nervosa (Gull's disease) and certain combinations of exogenic and endocrinologic causation (hyperthyroid, diabetic and addisonian). Diabetes may be associated with excessive height and dysplastic proportions or shortness with infantile proportions. The latter may be caused by a hypophysial lesion, and the outlook is grave.

In the time of Naunyn (1890) the mortality rate in juvenile diabetes was 89 per cent, in that of Allen (1910) 69 per cent, in that of Bautruy (1920) 10 per cent and in 1945, 2 per cent. The diminished rate of mortality is due to the administration of insulin and to use of proper diet. Dr. Marañon stated that it is an error to abolish glycosuria in diabetic children, because these patients require a high carbohydrate diet to stimulate the hypophysis and to provide energy for growth. Complete control of glycosuria decreases the patient's appetite for food.

Congenital abnormalities are considered as evidence of defective vitality. Certain abnormalities, such as polydactylia, do not cause functional disorders, but others, such as myopathies and cardiovascular diseases, are the cause of acute functional disorders. In the majority of cases of congenital abnormalities growth is defective. In almost all cases the hypophysiohypothalamic trophic sympathetic centers are defective. In most cases of congenital abnormalities there are coexistent endocrine syndromes. The adipose genital syndrome (Laurence-Moon-Biedl syndrome) is associated with congenital abnormalities; infantilism is associated with cardiopathy and nephropathy (renal lithiasis), dyschondroplasia and changes of the skeletal system; infantilism also may be found in association with diseases of the spleen, liver and abdomen. Dyschromia of the skin or the mucous membranes may be related to infantilism, gigantism, acromegaly, addisonianism and the genital adipose syndrome. In addition, achondroplasia may be associated with hypergenitalism. Frequently nervous abnormalities and endocrine diseases occur concomitantly (anencephalia and adrenal aplasia; mongolism and myxedema; amaurotic idiocy and nanism; oligophrenia and infantilism). Myopathies and endocrine diseases also may occur simultaneously (myopathy and genital adipose syndrome or macrogenitosomia).

This series of lectures was published in book form.

INDIA

(From a Regular Correspondent)

Bombay, January 25, 1950.

Medicine in India

It is not possible to write about medical affairs in India without referring to the political events of recent years and mainly to India's gaining independence on Aug. 15, 1947. Before that date, modern Indian medicine carried the imprint of English medicine, which was mainly represented by the Indian Medical Service. This institution with its director-general in the city of New Delhi to a great degree commanded medical matters. Its members held the important posts in medical administration; they were the teachers at medical colleges and the so-called civil surgeons in towns and districts. Like all mainly British-run institutions, the Indian Medical Service was confronted by strong opposition from nationalist Indians, and therefore its "Indianization" did not come as a surprise when the independent Government of India took over. Changes in the principles of the Indian Medical Service were particularly pressed for, as its original structure was considered inadequate to meet the demands of modern medicine.

The Government was faced with the double task of reorganizing the medical services and finding suitable personnel to fill the gaps left by voluntary or compulsory retirement of the non-Indian members of the Indian Medical Service. This in itself would have been a difficult problem for any Government, but India had to deal with at least one other important medical aspect, i. e., the indigenous systems of medicine prevailing in this country. To understand the position, a short excursion into the history of Indian medicine is necessary. For details I refer to the excellent chapter in Arturo Castiglioni's "History of Medicine," from which I shall freely borrow here, to the addresses given at the Twenty-Fifth All-India Medical Congress in Calcutta in December 1948 by Drs. A. K. R. Chowdhury and S. K. Chowdhury, dealing with the history of indigenous medicine in India and, perhaps best of all, to Sir R. N. Chopra's presidential address to the Thirty-Fifth Indian Science Congress in 1948.

"The characteristic note of Indian medical thought is found in medicine as a philosophy in a systematic edifice in which every pathological concept has its place." Traditional medical texts are based on the Indian physicians' practice of indigenous systems, of which there are two, the Vaidak (Aryuvedic) and the Unani. They are separate but hold some of their theories in common. The Unani system is closely connected with Moslem culture. Theoretically the Aryuvedic system, rooted in Hindu culture, is based on a kind of humoral doctrine built on three "doshas," or essential principles, which pervade the tissues and excretions and determine health and disease. These are the vital principles on which food, drink, medicine, experimental applications and exercises are based. Aryuvedic medicine also knows a causative agent "Prabhatha," similar to the constitutional factor of Western medicine. Therapeutical bases are dietetics and the infusion or decoction of herbs prepared

by the doctors from traditional prescriptions that have mostly come to them from their forefathers or according to textbooks.

Besides the orthodox school previously described there is a more modern one with training in anatomy and physiology by teachers with full medical degrees. Dr. S. K. Chowdhury in the aforementioned address analyzes the reasons why the Aryuvedic system has been regaining ground. He notes the general cultural trend, restoring and fostering everything indigenous to the soil. Contrary to Western modern medicine, which is British (foreign) and therefore repugnant, Aryuvedic has a patriotic grip on the masses, and, with its slogan "remedies native to the soil and which will cure diseases occurring in it," it has become an important factor in the national political program. In spite of centuries of stagnation in both research and practice of indigenous systems of medicine, it is significant that 80 per cent—others estimate up to 95 per cent—of Indian inhabitants seek medical aid from Aryuvedic and Unani practitioners. Recognizing the trend and the facts, the new government of India appointed a committee on indigenous systems of medicine, under the chairmanship of Sir R. N. Chopra, which concluded that medical relief as provided by Western medicine does not meet the demands of the country, while the Indian systems of medicine satisfy the needs of large groups of the population, insufficiently cared for by the official Western medicine. The committee does not doubt the value of what Western medicine can give to Indian medicine but believes that the former can also benefit from the Aryuvedic principles already described and especially by the use of "suprasensory perception." It visualizes the integration of Indian and Western systems of medicine; in order to achieve such synthesis it devises a curriculum of studies of five years of both branches. The committee considers that the time has come when a new Act should be proposed to give the Central Government control of all recognized systems under a Central Council and with central direction of research, drug control and drug manufacture. The president of the Aryuvedic Educational Conference held last year in Baroda goes much further than the Chopra Committee and wishes the Government to declare Aryuvedic "the educational system of treatment as the only one preferred by 95 per cent of the Indian population in the villages." While the Chopra Committee hopes for a synthesis of the different systems, this Conference considers the latter course inevitable. Obviously influenced by developments elsewhere, this Conference demands the abolition of private practice and the complete socialization of health service as the only way of providing adequate medical attention to the underprivileged masses.

It is difficult in this vast subcontinent to get exact statistical material. The nearest approximate figure indicates that in 1948 India had fifty-one state-supported hospitals providing, and part of them teaching, indigenous medicine and about four thousand dispensaries catering to 14,000,000 patients. The Chopra Committee suggests that teaching be confined only to such institutions as are able to keep up a standard as required by a governmental body. How many of these already existing hospitals are or will be able to comply, it is not yet possible to say. The preparation of modern Aryuvedic textbooks would fall within the orbit of this supervising body; this gives rise to the question in which language they should be published. One would think, of course, in the national language (Hindi); but another committee—the Yodh Committee—proposes the use of various regional languages, which would mean higher expenses and a barrier against free exchange of ideas. The language problem is not confined to the sphere of indigenous medical systems, and, as pointed out in the beginning, politics interferes with science. The Bombay Medical Council takes a stand here and also gives its views on the Chopra report. It recommends continuation of English as the teaching medium till the government regulations for the national language are made final. It also stresses the necessity of knowledge of English for the medical student, to enable him to keep abreast in world medical science even after the national language has been established. While the Chopra Committee visualizes "systems" merely representing different aspects and approaches to medical science as practiced in different ages and in different parts of the world, the Bombay Medical Council finds that the revival of old-time Aryuvedic medicine as a complete system comparable to modern science should be absorbed into modern medicine or vice versa. Whatever system or combination finally prevails, India without any question offers an enormous field for all branches of research, including studies in indigenous drugs.

ARGENTINA

(From a Regular Correspondent)

BUENOS AIRES, Feb. 10, 1950.

Malaria

Some months ago the general director of the fight against malaria disclosed that no new cases of malaria infection occurred during the summer and autumn. The Minister of Public Health announced that the campaign against malaria (specially organized with DDT applications) was successful and that malaria had been completely extinguished in the country. The tasks of the general director of the fight against malaria have been charged to a regional director of public health and epidemiology in the northern provinces of Argentina. The government has granted 650,000 pesos for continued prophylaxis against malaria.

Congress of Otorhinolaryngology

The second Pan-American Congress of Otorhinolaryngology and Bronchoesophagography was inaugurated by the president of Uruguay in Montevideo January 9. From January 14 to 16 the meetings were held in Mar del Plata, Argentina, and from January 17 to 20 they were held in Buenos Aires. The sessions were attended by one hundred and ninety-six foreign delegates, among them Drs. Kobrak, Lindsay, Shambaugh and Silverman from the United States. The most important subjects of discussion were audiometry, otosclerosis, surgery of deafness and cancer of the larynx. The next congress will be held in São Paulo, Brazil, in 1951 and the fourth one in Havana, Cuba, in 1953. The president of the congress in Uruguay was Dr. Justo Alonso and in Argentina, Dr. Juan M. Tato.

Poliomyelitis

In 1949, 278 cases of poliomyelitis with paralysis were reported in Chile; 43 of them were fatal. There is general alarm due to the increase of cases observed last year. In the first weeks of January there were 63 cases, 12 of them fatal.

University Cities

The University of Tucuman (Argentina) has undertaken the project of a great university city, and the establishment of a university city has also been projected in Córdoba, where the cost will be about 70,000,000 pesos.

Personal

The German scientist Prof. Gerhard Domagk, discoverer of the chemotherapeutic action of prontosil (diaminoazobenzene-4'-sulfonamide), who has delivered in Spanish some lectures on 4-aminoacetylbenzaldehyde thiosemicarbazone, or conteben, a sulfonamide compound active against human tuberculosis, was appointed Doctor Honoris Causa of the University of Buenos Aires.

Correspondence

INFANTILE PARALYSIS

To the Editor:—The year 1949 brought with it the highest incidence of infantile paralysis on record in the United States. But the year 1949 also brought with it the deeply reassuring and heart-warming response of people in the unsparing service given by the professional personnel who cared for the stricken. Hospital administrators, nurses, physical therapists, medical social workers, physicians and their many assistants—all were willing to make adjustments in their professional and personal lives to provide the watchful and expert care so necessary for the maximum recovery of poliomyelitis patients.

I wish it were possible to thank personally the many thousands of persons who gave so unstintingly of their time and service. I am happy indeed, through this open letter to those who served, to express the gratitude of the National Foundation for Infantile Paralysis, as well as my own personal appreciation, for their service to infantile paralysis patients.

BASIL O'CONNOR, New York,
President, National Foundation for Infantile Paralysis.

DISINFECTION OF AMPULS

To the Editor:—The article titled "Improved Lid for Sterilizing Jars" by Daniel C. Moore, M.D., in THE JOURNAL, January 21, page 175, prompts the following comment on disinfection of ampuls. Germicides chosen for this purpose should have a low specific gravity so that the handling of ampuls is not unwieldy. In some instances the relative specific gravities of the solution and the ampuls are such that the latter submerge; i. e., tubes of surgical gut. The germicide should be one with germicidal vapor so that the protruding portion of the ampul as well as the inner surface of the container and the lid, which the ampul may contact, are subjected to disinfection. The agent should also be a fat solvent to remove greasy fingerprints which may protect underlying bacteria. Alcoholic solutions of formaldehyde fulfil these requirements.

It is desirable to color the solution with a compatible dye so that leakers (improperly sealed or cracked ampuls) will be detected. Paraplegia due to the intrathecal injection of anesthetic agents contaminated with germicide has been reported.

There are certain rules for the disinfection of ampuls which must be observed for the safety of the patient. Paper labels usually come off, and the identity of the drug is lost. The same is true of soluble imprints on the ampuls. Only ampuls imprinted with permanent marking should be purchased. Many persons have the habit of fastening paper labels in place with small rubber bands. The germicide does not penetrate beneath the rubber band, and the outside of the ampul is unsterile. It is customary in many institutions to fasten two or three ampuls together so that medicinal preparations for a certain type of spinal anesthesia, for example, can be picked from the jar easily. Meningitis has been traced to this practice. In certain hospitals tubes of surgical gut are fastened together so that assorted sizes are readily available to the transfer forceps. Here again, unsterile gut tubes reach the operative field.

Where nontoxic and nonirritating germicides are essential, as in the physician's office, children's hospitals and mental hospitals, nonvolatile germicides must be used and a lid such as the one described by Dr. Moore is essential. The germicides should incorporate a detergent or the ampuls should be washed free of finger prints before they are submerged. A lid such as that described by Dr. Moore has been in use locally for fifteen years and is illustrated in my monograph, "Aseptic Treatment of Wounds," published by the Macmillan Company in February 1948. The illustration is figure 18-5 on page 33.

The disinfection of ampuls is useless unless there is a means at hand for transferring them to the sterile field. An important source of contamination is the usual "sponge stick." Sterile transfer forceps such as illustrated in figure 17 of the same monograph avoid the sources of contamination which make improvised forceps a true hazard. A well designed transfer forceps also effects economies, in that ampuls are not dropped to the floor as readily.

CARL W. WALTER, M.D., Boston.

Medical Motion Pictures

FILM REVIEW

Intravenous Anesthesia in Ophthalmic Surgery. 16 mm., color, silent, 800 feet (one reel), showing time twenty-five minutes. Prepared in 1949 by Murray F. McCaslin, M.D., and George J. Thomas, M.D., the department of Ophthalmology and Anesthesiology, University of Pittsburgh School of Medicine, and the Eye and Ear Hospital, Pittsburgh. Procurable on loan from Murray F. McCaslin, M.D., the Eye and Ear Hospital, Pittsburgh.

The advantages of intravenous anesthesia in ophthalmic surgery are discussed, following which the method of management of this technic is discussed and demonstrated. The painstaking technic of combining topical and regional anesthesia (the O'Brien block) with intravenous anesthesia makes a valuable presentation and no doubt accounts in considerable measure for the authors' success with intravenous anesthesia for ophthalmic surgery. A brief review of the fundamental nervous anatomy of the O'Brien block would have been a valuable adjunct for a better understanding of the extent and function of this block.

To prevent paroxysms of coughing and sneezing at the beginning of anesthesia induced by thiopental sodium (pentothal sodium®), the nares and pharynx are sprayed with a solution of cocaine. During anesthesia, oxygen is supplied through a tube inserted in the mouth. After administration of the anesthetic agent has been discontinued, the patient is given oxygen and carefully watched by an attendant until recovery has taken place. Only short sketches of ophthalmic surgical procedures are shown. For the instruction of beginning anesthesiologists, the addition of the anesthetists' criteria for anesthetic depth would be of value, since only the surgeons' criteria for this determination are presented. The efficacy of the one method of oxygen therapy presented is open to question, because other methods that provide a higher concentration of alveolar oxygen are sometimes definitely indicated.

Complications with this anesthetic method are briefly mentioned, but the management of complications is not presented. Since respiratory depression is the most common complication, the method of management of this serious situation, including resuscitation and endotracheal intubation, should be included in order to safeguard this anesthetic procedure. The film should also include visual evidence of observations being made of respiratory and circulatory activity not only before but during and after anesthesia, since success with this method and the life of the patient depends entirely on the proper control of these two essential systems.

Some of the contraindications for intravenous anesthesia are presented. A few additions might well be made to this list, including such conditions as asthma. The text might be enhanced by a brief statement as to the extent of the authors' experience with this method and the incidence of complications.

The plan for the presentation of material in this film is excellent. This film in its present form is recommended for showing to experienced anesthesiologists and ophthalmologists; with the suggested additions it would be an excellent film for the instruction of medical students, interns, residents and any physicians interested in surgery. The photography ranges from good to excellent.

National Conference on Rural Health

Fifth Annual Meeting held in Kansas City, Mo., Feb. 3 and 4, 1950

SATURDAY, FEBRUARY 4

Ball Room, Hotel President

DR. F. S. CROCKETT, *Chairman*, Presiding

(Concluded from page 934)

CHAIRMAN CROCKETT: The rules, as we have tried to develop them over the years, have been that this is the study group. We feel that matters which could be presented here in essential agreement from study groups should be presented and those which are still in disagreement should be postponed for further study. This morning we want to hear the reports of the group chairmen, yesterday was the time when you had the chance of discussion. We will call then on our Group I Chairman.

Group I. Rural Medicine Facilities at the Local Level

MRS. HAVEN SMITH, Vice President of the Nebraska Farm Bureau Federation, Chappell, Neb.: In our group there were 14 representatives of rural groups, three educators and 18 doctors.

We met first in subgroups: one group, under the direction of Dr. McGibony, discussed federal aid; the other group, with Dr. Spelman serving as chairman, discussed other facilities. When the full group gathered to discuss medical facilities at the local level, we divided into small groups. Then they discussed for eight minutes a question which had been submitted by a subgroup. At the end of each discussion, the spokesman reported the results of their deliberations.

I have summarized the afternoon's discussion:

1. We must have an intensified educational program to acquaint people with the facilities that are available to them. This program needs to be carried on by both professional and lay leaders through the school, the church, the newspaper, civic groups and all local organizations.

2. Coordination and integration of existing and proposed facilities is absolutely necessary for successful and full utilization of the program.

3. We need an ever increasing understanding between the doctors and the community, which should lend help and understanding to the doctor in his attempt to establish clinics and postgraduate courses, to keep abreast of the times. The public must feel a responsibility to help its doctors make the full utilization of their time and ability.

The community must realize that it has a responsibility and a stake in making it possible for their doctors to operate efficiently, for example, by bringing the patient to the doctor whenever possible, by setting up small local units for handling obstetric or emergency cases.

4. We need to have more outpatient service in rural hospitals for the care of the indigent and also suggest that this problem could be solved by local doctors holding free clinics for these patients once or twice a week.

5. The community must be stimulated to undertake more realistic and objective measurement of health and hospital needs. In the Hill-Burton legislation we face some broad challenges in bringing better medical care to rural America. Now we must see that the details are worked out to best fulfil our needs. It was pointed out that on an average only half of our hospital beds are in use. This is partly the result of lack of planning. In some cases we have built hospitals only to find that it was not a hospital that we really needed but a medical center.

We need a greater understanding of the cost of maintenance of medical facilities. This requires the help of persons who are trained in this field, working with well organized local health councils to make a careful analytical determination of needs.

6. We come back again and again to these fundamental principles: We must be informed; we must plan, and we must work together.

The last years have taught all of us two great lessons: First, the necessity of knowing our problem and of careful planning. The other lesson is the value of cooperation. Singlehanded we can accomplish little; united with others we become a mighty force.

Group II. Relation of Agriculture Extension Service to Rural Health Problems

DR. HARRY REED, Dean of Extension Service, Purdue University: The Extension Service has promoted educational programs directed toward helping rural people to recognize their health problems and to take action to solve them. These programs have been in sanitation, animal diseases affecting human health, nutrition, housing and other problems related to health, and this has involved such groups as the 4-H group, the large organized groups of rural women (in our state we have nearly 70,000 organized in home economic projects) and the older Youth Groups.

Some of the newer problems are concerned with how to provide better health services and facilities and how to pay for them. Problems of this kind cannot be solved by the farm family alone or by the community alone. They call for the concerted study, consideration and action of many families, agencies and organizations—oftentimes many communities.

The Extension Service recognizes responsibilities such as:

1. Helping people to be aware of their own health needs. The Extension Service is an educational organization. All these recommendations are to be interpreted as being related to the educational activities of the Extension Service.

2. Encouraging and helping rural people to develop an intelligent interest in achieving positive health.

3. Helping people in local areas to get facts on their health needs as a basis for planning an effective health program.

4. Training local people in the technic of community organization.

5. Finding and developing leaders for carrying on health programs. Extension Service can help young people see the opportunities for service through training in rural health work, and they are counting on doctors to interest people in being nurses, and technicians, since rural persons, if they go into those activities, are more likely to be interested in returning to the rural areas.

6. Assisting rural people to mobilize all the local and the other resources to make the best use of what they have.

6. Helping rural people to work out plans for the coordination of all their health services. This may be done through local, county or state health councils.

In our group there was discussion about whether to have the state health council or the county health unit first. The consensus was that greater service would be rendered by having the county units established first.

The job of helping rural families and communities to be aware of, and to solve, their health problems requires much time of a staff well informed on health problems. Only about one third of the states have a staff member whose major responsibility is helping rural people in the solution of their health problems.

These recommendations are made:

1. That measures be taken to inform all Extension workers of the health services and facilities available to rural people; also, that they be helped to see the health program as a unified program that has to do with the family's physical, mental and social well-being.

2. That states, as soon as possible, employ a qualified health education staff to assist the Extension workers and rural leaders on state and local levels in planning and developing health programs.

We feel that a great deal could be done if the Extension Service staff, which includes the Home Extension Agent, the County Agents, and the Assistant Agents, as well as the resident staff, is acquainted by the university with all the facts

that are known regarding services that are available. Most Extension workers, perhaps, do not know all about all of the various organizations. I am thinking of the heart group, the cancer group, the tuberculosis group and the poliomyelitis group. Often the Extension workers are used to assist in the campaign, but often they do not know what service that group can take back to the farm people. We would like the Extension workers to know more about what these various associations can do for the farm people. Not what the farm people can do for them. That we know. I doubt whether any of us could give all of the real services that could be made available.

3. That prior to the initiation of a health project, which involves the employment of any Extension health personnel, the ground work be laid for cooperative working relationships, with all health agencies and organizations functioning in the area. We would like to underline that. It is not wise just to jump in and say, "We are going to do this," without first getting the sympathetic cooperation of all local groups.

We have one area which has held up action for two years simply because the physicians have not been interested. I am fairly confident that they will be. We have had groups such as the one in Clarktown, Ind., where they are really working. A few such counties now and then will convince the more conservative persons that this is a good thing and not one to be fought.

4. That Extension workers direct their efforts to helping people develop the processes for studying and solving their own health problems. In other words, to serve as catalytic agents.

We have to develop that desire, that awareness, and sometimes that is done simply by bringing into play certain suggestions when we are talking nutrition, housing and sanitation and all these other things. Thus we can, in a month or a year, gradually get those ideas to stick. The thing is to get the people to feel that it is their idea. Our job and the job of all agencies, as we see it, is getting the facts before the people. Here are the prepayment plans. We must get these facts out. There are organizations that have a prepayment plan. If they were to come as individuals and say, "Which is the best one?" I certainly would not know. Maybe there is some way of getting more facts available so that people can appraise the real value or the comparative value of certain plans.

Group III. Community Responsibility for Health Service in Rural Areas

MR. J. S. JONES, Executive Secretary of the Minnesota Farm Bureau Federation:

Group III composed the largest group of any of the sections. We had over 60 persons in each Section, representing Extension Service, Schools, Physicians, Hospitals, Public Health Specialists and Medical Auxiliary. We had 28 doctors in our Section coming in contact with 41 persons representing farm organizations.

Our group broke down into two small groups.

Group A began by listing on the blackboard *What Are Our Community Responsibilities in Matters of Rural Health?*

1. Our first and most important responsibility as citizens is to become aware of local health needs in terms of medical and health services.

2. It is our responsibility to survey these needs and problems in terms of our financial and active support for (*a*) obtaining physicians, and (*b*) additional facilities and services and (*c*) eliminating environmental hazards.

3. It is our responsibility to survey the needs in our community so that we may plan programs of suitable scope to meet the particular needs of community.

After defining our community responsibilities for rural health improvements, this group broke up into small units to discuss successful community programs which have been carried out in communities. We learned about programs from Florida to California, Massachusetts to Texas. These programs centered on: (1) community health council, (2) legislation for health improvement and (3) obtaining public health departments.

Probably the most outstanding success stories centered on the survey of community health problems by means of local and state workshops, community councils, health department surveys and others undertaken by farm and home agents. Many of the small groups brought out that the best surveying is done by farm women going from house to house to obtain information, stimulate interest and become better acquainted with their communities.

We learned about successful hospital projects, tuberculosis and venereal disease control campaigns, hospital insurance programs, school health programs, sanitation improvements and successful cooperation in planning together through state and local health councils.

Section B also broke into small discussion groups to bring out different stimuli for community action. Probably the best programs result from stimulation motivated by the particular problems from within the community, but it makes no difference whether it comes from one direction or the other. The discussion centered on: (1) action to get a hospital, (2) action to get a physician and (3) action to get a health department.

Both of the smaller sections came together at 3:15 p. m. to report their section discussion. After the reports were heard, we again broke into small groups to restate the problems and make recommendations.

HOW TO GET A HEALTH DEPARTMENT ORGANIZED

1. Sponsor a legal enabling act—passage of levy. We suggest you write to the Florida State Board of Health, Illinois State Board of Health and Mississippi State Board of Health for copies of their acts.

2. Arrange for adequate public health salaries.

3. Recommend better training of public health personnel.

4. Survey local problems to see what type of health department is necessary to meet local problems.

5. Arrange for adequate financing of health department. There are various ways of financing, such as by mileage levy or contribution.

6. Initiate a process of education of people so that they understand problems and its implications.

7. Gradually eliminate inadequate health departments to be supplanted by adequate full time units. We have here a statement made by Dr. Haven Emerson which we want to incorporate in our report:

"No kind of artificial salesmanship is going to persuade the youth of our nation to go into health fields when they see underpaid, untrained, overburdened staff working in cramped, dirty quarters. They must see good sound programs in action by a qualified staff.

"The community can contribute to recruitment and training of professional and technical personnel for medical care of the state and for public health services best by visiting a community health council which, among other activities, should devote a major portion of its influence (*a*) to see that schools and other educational institutions in the community know of the needs, the opportunities and training facilities for doctors, nurses, dentists, veterinarians and technical aids; (*b*) to see that good hospitals and auxiliary services for diagnosis and care of the sick are operated for the community, whether or not located in the community, and that a local health department is operated at a high level of quality of personnel and functions.

"It is felt that the best argument for recruiting and training in medical care and public health is the presence of a good hospital or health department in the community."

HOW TO GET A HOSPITAL

1. A communitywide survey to find the type of hospital needed and necessary facilities based on community problems. No hospital should be built before a competent survey is made.

2. Methods for getting funds: (*a*) by subscription of local funds through donations, (*b*) by use of local tax funds, (*c*) by use of federal and state funds, (*d*) a combination of the foregoing or (*e*) by securing endowments.

HOW TO GET INFORMATION TO PEOPLE

1. By use of methods already demonstrated to be successful based on the needs of that community.

2. By use of agencies and all methods, like councils, that have proved to be successful, working through parent teacher associations, the Farm Bureau, all farm organizations, Extension

Service, the newspapers. We should not get information to people by forced feeding methods but by technics developed by professional, responsible personnel in local agencies.

The main part of all discussion throughout the afternoon centered on: 1. Community health councils. Someone defined community health council as "A group of local individuals organized to discuss their health needs and manner of improving them." I think that was Dr. Emerson's definition.

2. A group of persons discussing freely the specific function or problem brought before it—a coordinating educational body.

We recommend:

1. That Councils be formed by people in the local communities.

2. That people be asked to indicate what they are interested in. It was brought out that the best results come about when as many people as possible are asked what their chief interest is.

3. A health council should be an organized expression of that particular community preceded and continued with a program of education based on local needs.

As to functions we believe:

1. That a prime council responsibility is to maintain sustained interest.

2. That it has responsibility for finding out what they have in the community—existing facilities and agencies.

3. That it has responsibility to find out what is needed.

4. That it should develop the ways and means for meeting the problem.

5. That it should keep the public informed.

Group III has one main recommendation which seemed to be brought out constantly throughout the entire afternoon.

1. We recommend thorough and complete community diagnosis by citizens where they live.

2. We should beware of superimposing ideas on people. Each community is different, the problems are different, and the solution will be different.

3. We recommend unity, not uniformity—the American way of life.

Group IV. Methods of Prepayment for Health Services in Rural Areas

Mr. H. E. Slusher, Chairman of the Health Committee of the American Farm Bureau:

(a) *What Should Be Paid for Out of Tax Funds?*

(b) *What Should Be Paid for by the Individual?*

I am not too sure that we found the solution. There were some minority opinions as well as majority opinions. In this report I am going to try at least to recognize some of the solutions which were voiced by a definite minority, in my opinion. However, we are going to present them for you because one of them does present a challenge.

The two groups had their separate sessions; then we had a joint conference. We arrived at some rather definite recommendations and with some seven or eight specific recommendations which we thought would merit the consideration of the entire group.

1. Tax funds should be used to buy medical care only when it is impossible for the individual to secure medical care without such help.

2. Greater efforts should be made to improve and sell voluntary prepayment plans to more of the farm people.

We recognized the broad question as to when one determines whether the individual can pay for medical care himself?

Perhaps we spent too much time in limiting discussion to the indigent. I am not sure that we came up with an answer.

We recommend that:

1. Tax funds should be used to provide educational and other recognized public health services. There was no disagreement on use of taxes to pay for what we recognized as our general, over-all preventive health programs.

2. Tax funds and local contributions should be used to provide medical care for the indigent with local administration of such funds. That is always, of course, one of the items that gets under discussion when we talk about using tax funds particularly federal tax funds, how to get those funds available so that we can administer programs at the local level and remove the political implications from the program.

3. Tax funds should not be used to provide health care to those who are not medically indigent.

4. All interested groups should make every effort to devise and sell voluntary medical, surgical and hospital care plans designed to cover catastrophic misfortune.

5. Most of the group agreed that real progress had been made in enrolling rural people in prepayment plans. They agreed that greater effort was needed to enrol still more. However, a minority felt that the progress had been so slow that a new plan would have to be designed to solve the problem. One such plan, the feasibility of which was questioned by many, was an insurance policy with a variable premium according to ability to pay. It was found that no actuarial basis for operating such a program could be found. In other words, we had one insurance man in the group and, speaking unofficially, he said he did not think that, as an insurance man, he would dare to embark on such a program. Many of us who are connected with insurance programs had somewhat the feeling that to have a variable premium, which would pay the cost of medical care for an entire group, would be exceedingly difficult to administer.

6. Policy coverage—if desirable to provide health insurance offering full and unlimited service. Such a complete program is not feasible, nor is it deemed essential to meet the basic needs desired for health security. While a minority of those present favored a program of unlimited service, the majority agreed the current program provides the basic framework to provide the essential needs. There were a few in our group who had had experience with Blue Cross and Blue Shield and other insurance programs and felt that we had already oversold those plans to our farm people and that we did not say enough about the exclusions, or the "fine print," in the contract which was purchased. Then, of course, the individual, who thought he was fully covered, went to the hospital and there was some hard feeling caused.

We have made a lot of progress. People who ten years ago had never thought of it today are using some kind of hospital insurance; if one has occasion to use a hospital and is satisfied with it, then his neighbor is sold on the idea. So I think we had better cut the plan to the acceptance by our people out there and as time goes on we will want a bigger and better plan, but let us use what we have with its limitations until we have universal acceptance of that and then we can add on to that acceptance.

7. Sales efforts among farm groups have in some instances created misunderstanding of the benefits and the more important limitations of the benefits provided in the policy sold.

There is need for further education of farm groups with respect to their needs and the availability of plans by which health security can be obtained. This education is an enormous responsibility of farm groups and insurance agencies which expect to serve farm people.

The general agreement was that prepayment for health insurance from taxes should be employed only when the individual cannot possibly provide the care himself.

Group V. The Responsibility of the Medical Schools in the Rural Health Program

Dr. J. Murray Kinsman, Dean of the University of Louisville, School of Medicine: It was pointed out that with respect to a great many of the boys who were not accepted for medical school, the basis on which they were refused had been established in their first or second years of college and that, if the colleges had sorted and sifted their premedical applicant students thoroughly in the beginning those boys could have been side-tracked and kept from pursuing a medical course, with perhaps years saved.

But the increased enrolment has limits, because of the lack of teachers in the medical school who are capable and willing

to teach and the lack of sufficient money for salaries and facilities. So there is a limit to the number of students that can be taken.

Internships were discussed at length. It was emphasized that rotating internships specifically for general practitioners should be encouraged.

Dr. Miller, who has had much experience in postgraduate and refresher courses, gave these ideas, which were discussed at length:

1. A course should be limited to three days a week instead of five and Monday and Saturdays be left free because those are the busiest days for a general practitioner in the country.

2. The course should be given in the medical center, at least periodically, because of the availability of its library and clinical teaching material.

3. Courses should be given throughout the state in centers which are strategically situated from the standpoint of transportation.

4. The course should be adapted to the doctor's training. Sometimes the city specialists come down and talk over the heads of the country doctor, or they are more apt to do the reverse.

5. Private patients should be used as much as possible. The general practitioner should choose the subject material rather than leave it up to the visiting teacher.

6. Replacements for the general practitioner should be furnished when possible.

7. The general practitioners who take these courses should take examinations on them and be graded. That would help a bit in deciding what capacity they have from the standpoint of the teaching level the next time. These are Dr. Miller's ideas. I am passing them on to you.

8. Doctors should pay for their courses. One is more apt to take advantage of something he pays for.

Then we went out of our field and began talking about how to get doctors to the country. One physician said this poor distribution of doctors would take care of itself, because the cities were now becoming saturated with doctors and, if they are going to make a living, many of them would have to go to the country. I think he is probably right.

Among other recommendations I took the liberty of considering justified from the discussions yesterday were that teaching hospitals be encouraged to inaugurate special internships for general practitioners, that visual aids be widely and wisely used, that automatic projectors be used when available and that communities which think that they need a doctor prove their sincerity by taking steps to attract one. They should remember that the doctor probably has a wife and family and that he is apt to stay if his wife is happy.

Summation of Conference

MR. ROGER B. CORBETT, Agricultural Counsel of the National Association of Food Chains: The first impression that I have is that this has been a good, constructive and valuable conference. I visited all five groups. It has been a working conference with everybody thinking and talking together.

In spite of all that we have been saying to improve the situation, these United States do have the best rural medical care in the world.

I have been here before, and I am surprised at the number of agencies that are at work. Many of us need to be informed as to how many agencies actually are working in the field. We need to know just who is working at the present time.

When we find out who, I want to know much more than I do about what each is doing. If we are going to pool our plans and resources, as has been indicated several times, we have got to know both *Who* and *What*.

My next point may be the most important one that I am going to give you. Will you agree with me in this: that the answers will not be found in Washington, or in Chicago, or even in Kansas City, but they will be worked out in local communities by informed individuals working together.

Important as the Hill-Burton Act is, and nobody has disparaged that as far as I know, it is much more important that people have the right attitudes, that people have the desire to do something about it. We have agreed that that comes to focus in health councils—community, county and state. What happens there is that the people get the information. Out of people getting information and working together comes the leadership that makes those councils successful. I believe it was implied that, when that leadership did not come, then the council might not be successful.

Probably the finest thing about it all is the spirit that has pervaded this conference. You have come here, doctors, farmers, educators, laymen, to give and take. There has been no one that I have heard who has been so sure that he was right that he was not willing to take something from someone else. It has been a fine example of working together.

I was interested to hear a report yesterday that in some medical schools the boys themselves were asking that some of the technical courses be cut out so that they could have a little more time on what might be called the human courses, learning how to live together. This has been a fine demonstration of what we need everywhere. We have worked together progressively, actively and definitely at this conference. But the question that has tremendous effect on our inability to work together, is: Who will make the decisions? We in the democracies are saying that the individual is important. We have said here today that the decisions should be made by individuals in local communities. We have said that you, in your own local community, should make the decisions, which means that you would take the responsibility. You have said here you would take the responsibility of medical care. I believe you have said, as you thought this through, that that is the sound and the best way out. So you have answered the most important question when it comes to your field: Who will make the decisions?

This conference has been moving ahead. *It has lived five years of progress and growth. It has been a demonstration of democracy in action.*

Address of Dr. Ernest E. Irons

DR. ERNEST E. IRONS, Chicago: We are in the midst of a fight for the preservation of American ideals and American freedom. At the moment medicine and those who participate in its processes of education and maintenance of standards are in the front line.

Many of the community problems of rural areas can best be solved by community efforts. Rural groups have always been accustomed to think for themselves. When economic difficulties overtake a family in a rural community, their neighbors set up a program to take care of the individual problems. They take pride in this. This nation is dependent on the farm communities for the production of food supply. It is also dependent on farm groups for rural medical planning. Rural communities know better what they need better than can any bureau in Washington. Subsidies, whether to education or to farmers, may seem desirable but are actually designed as inroads on our freedom. This nibbling at freedom is part of the socialistic program of establishing a planned economy in a country which has always boasted of freedom of opportunity. Recently, when it became evident that the administration bill for nationalization of medicine with its enormous addition to the already unbalanced budget could not be expected to pass this Congress, the announcement was made that only parts of the plan for the welfare state would be attempted. This is the Fabian technic of placing "a foot in the door."

Federal aid to education including medical education is one of these parts in the welfare program. Every subsidy carries with it the threat of regulation. In 1942 the Supreme Court in an opinion involving benefits and subsidies held, "It is hardly lack of due process (of law) for the government to regulate that which it subsidizes."

High prices for food bring demands for increased wages with increase in cost of manufactured commodities which the farmer must buy. In the end the small farmer loses not only his freedom but also the value of the subsidy given him by a paternalistic government. In all this we are repeating in one form or another the ruinous experiments of ancient China and Rome, or those of more modern nations. We must discard "deals" and their unsavory connotations and return to a sound program of honest thinking and free enterprise before it is too late. Marxian materialism must not be substituted for moral principles and for individual freedom and responsibility.

Bureau of Medical Economic Research

INFANT DEATHS AND STILLBIRTHS IN LEADING NATIONS

NOTE.—*The Bureau of Medical Economic Research of the American Medical Association has recently published Bulletin 73, Infant Deaths and Stillbirths in Leading Nations (20 pages). A copy will be mailed to any physician on request. The Bulletin contains eleven tables and many references to the official publications of the ministries of health of the leading nations. Following is a summary of the Bulletin by the authors, Frank G. Dickinson, Ph.D., Director, and Everett L. Welker, Ph.D., Associate in Mathematics, of the Bureau staff.*—ED.

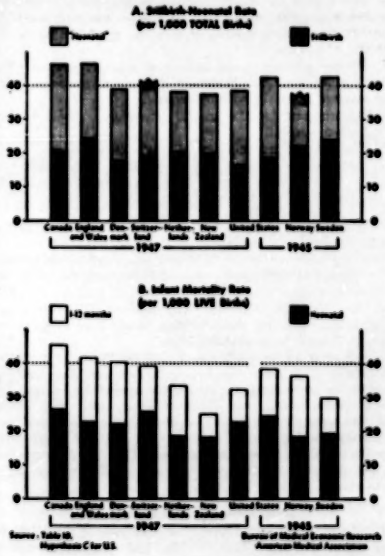
The data on infant mortality presented in Bulletin 73, Infant Deaths and Stillbirths in Leading Nations, clearly indicate three important facts; first, the United States has made rapid strides in reducing the number of infant deaths; second, the difference between the infant mortality rate of the United States and the leader, New Zealand, is rapidly closing, and third, the mortality rate for the United States in 1946 was slightly lower than that of New Zealand for the second half of the first year of life. In 1915 the infant mortality rate for the registration area of the United States was 100 infant deaths per thousand live births—twice that of New Zealand. In 1948 the United States, with 32 infant deaths per thousand live births, trailed New Zealand by only 10—a provisional rate of 31.1 for the United States in 1949 has just been released by the National Office of Vital Statistics. The other countries which ranked ahead of the United States in 1948 were Sweden, Australia and Netherlands, with infant mortality rates of 23, 28 and 29, respectively.

In most countries low infant mortality rates are associated with low later (1 month and under 1 year) infant mortality rates, high percentages of infant deaths under 1 month (and even under 1 day) and high percentages of deaths due to premature birth. In the United States and Sweden a little over half the deaths occurred during the first week; the percentage of these deaths which occurred during the first day is much lower in Sweden than in the United States. Sweden was also exceptional in that its percentage of deaths due to premature birth was low, only about one-fourth that of the United States —undoubtedly the result of a variation in coding procedures. The cause of death of a premature infant in Sweden is frequently coded as congenital debility; in the United States the death is attributed to premature birth. International comparisons are complicated—nations differ in definitions and rules. Examples of significant differences in each of these are encountered in a discussion of infant mortality. In the United States an infant is liveborn if it breathes, shows heart action or moves a voluntary muscle. In many other countries the only test is breathing. Adoption of the United States definition by any country using breathing as the only test would tend to lower the number of stillbirths and raise the number of live births and early infant deaths. Variation in the rule governing the time allowed in the reporting of a birth can affect comparability of data. Long delay tends to increase underreporting and to increase the number of stillbirths. Reporting is probably more complete when a large percentage of births occur in hospitals with physicians in attendance.

The United States, with its large population, vast area, complex industrial pattern and mixed racial stock, cannot be compared without caution to the tiny nations of the world with excellent health records. The problems faced in these nations are far different from those of the United States. It is much more reasonable to compare groups of neighboring countries or to compare these small nations with individual states of the United States, preferably states with similar racial composition so far as possible. A number of such comparisons are presented in Bulletin 73. Possibly the most interesting is a review of infant mortality rate comparisons for certain groups of countries published by the United Nations which shows the lowest rate for Canada and the United States combined.

A visual summary of the infant mortality problem in the selected countries is presented in the accompanying chart. Part B of the chart shows the infant mortality rates for nine countries; for each there is a bar showing neonatal (black part of bar) and later (1 to 12 months) infant mortality rates (white part of bar). For Norway and Sweden it was not possible to obtain suitable data later than 1945; for all other nations 1947 data were available. There are, therefore, two sets of bars for the United States. The chart is arranged with the 1947 data on the left and the 1945 data on the right. In part B the countries are arranged in descending rank order according to the infant mortality rate for 1947 and for 1945; the arrangement is the same in part A. If breakdowns of the 1947 data had been used for Sweden and Norway, it is probable that the leader in infant mortality would be either New Zealand or Sweden, followed in order by the United States, Netherlands, Norway, Switzerland, Denmark, England and Wales and Canada.

The difference between the heights of the bars in part B for New Zealand and Canada is large. The neonatal rates,



Stillbirth-neonatal and infant mortality rates for selected countries.

which are indicated by the black parts of the bars, were lowest for Netherlands, New Zealand, Sweden and Norway. In general, a high neonatal rate is associated with a high infant mortality rate; Switzerland and the United States are exceptions to this rule, as indicated by the black parts of the bars. The white part of each bar shows the later infant mortality rate. Almost without exception the rank of the countries based on the infant mortality rate is the same as the rank based on the later infant mortality rate. The highest neonatal rate on this chart is about 1.5 times the lowest, while the highest later infant mortality rate is almost three times the lowest—for Canada and New Zealand. The rather high neonatal rate for the United States is surprising when one considers the low United States infant mortality rate. The explanation is found in the extremely low later infant mortality rate; as previously noted, the United States had the lowest rate of any country in the world for the age group 6 months and under 1 year. About one third of the difference between the infant mortality rates of New Zealand and the United States was due to the difference in the later infant mortality rates, and the remaining two thirds was due to the difference in the neonatal rates. The

one-third differential caused by later infant mortality can largely be solved by a decrease in the pneumonia and diarrhea deaths in the sections of the United States in which the infant mortality rates are relatively high. The remaining two thirds attributed to neonatal deaths has required further examination.

The definition of stillbirth is of vital importance in the neonatal rate. The classification of a birth as a stillbirth or as a live birth and an early death affects the neonatal rate proportionately more than the infant mortality rate. The effect of this classification can be eliminated by considering the stillbirth-neonatal rate (based on *total* births) rather than the neonatal rate (based on *live* births) alone; that is, the stillbirth-neonatal rate is obtained by adding the number of stillbirths per thousand total births to the number of neonatal deaths (under 1 month) per thousand total births. In the calculation of the stillbirth-neonatal rate it was necessary to take into account the difference in gestation period requirements of the several nations in the differentiation between stillbirth and miscarriage. The stillbirth definition for most countries requires a 28 week gestation period; this was used in hypothesis C for the United States along with a proration of the stillbirths for which the gestation period was unknown—about one eighth of all stillbirths. Under hypothesis C it was assumed that the distributions of the lengths of gestation period were the same for both groups—those with unknown periods and those with known periods. (Two other hypotheses, A and B, are discussed in Bulletin 73.) For Switzerland the gestation period requirement is 6 months and for Norway it is 8 months. Part A of the chart shows the stillbirth-neonatal rate based on hypothesis C for the United States and the reported stillbirth statistics for the other countries without any modification. The tops of each part of the bars for Switzerland and Norway are drawn as wavy lines to show that these rates are only approximations in view of the difference in gestation period requirements.

The heights of the bars for the different nations are much more uniform in part A than in part B. Indeed, with the exception of Canada and England and Wales, all of the bars are close to the horizontal guide line, a stillbirth-neonatal rate of 40. If 1947 data were available for Sweden and the stillbirth definition were modified for Switzerland, it is probable that the nine countries would be close to a total of 38 stillbirths and neonatal deaths per thousand total births, with the exception of the two countries with the high rates previously noted, Canada and England and Wales. The lower part of the bar in part A shows the stillbirth rate and the upper part shows the "neonatal rate" (deaths under 1 month per thousand *total* births). Excluding the two countries with high infant mortality and stillbirth-neonatal rates, the low stillbirth rates are associated with high "neonatal rates" and high stillbirth rates are associated with low "neonatal rates."

The actual difference between the stillbirth-neonatal rates for New Zealand and the United States is negligible—less than 1. The equality of these rates is the key to the explanation of that two thirds of the difference in the infant mortality rates between New Zealand and the United States not explained by the later infant mortality rates. If stillbirths are combined with neonatal deaths in order that all failures under 1 month of age be considered, it is found that the fundamental difference between New Zealand and the United States lies in the classification of a failure as a stillbirth rather than a neonatal death and not in the difference in the total number of failures. (It must be remembered that United States data include all races, while the New Zealand data used herein exclude the Maoris. It is probable that the situation in Australia is comparable to that of the other leading nations but, unfortunately, proper stillbirth data are not available.) It is difficult to forecast the amount of improvement which can be anticipated in this index as a result of improved prenatal and postnatal care. The relative importance and the stubborn character of premature birth render it one of the most difficult phases of the infant mortality problem. In the light of this discussion showing that the stillbirth-neonatal rates are approximately the same in all the leading nations, it seems reasonable to suggest that the major question to be asked about the continuing problem of infant mortality is: "How soon can the United States achieve a lower later (1 month and under 1 year) infant mortality rate than every other country in the world, large or small?" In the age interval 6 months and under 1 year the infant mortality rate in the United States was the lowest in the world in 1946. Well established trends in the United States, particularly in the sections where the number of infant deaths is relatively high, justify the expectation that the infant mortality rate in the age group over 1 month and under 6 months will soon be lower than that of every other nation. In this age group the deaths per thousand live births in 1946 were 3.9 for New Zealand (excluding Maoris) and 6.8 for the United States.

New Statistical Measure Needed

Since the infant mortality rates in various countries of the world have been reduced to a relatively low level, particularly for infants past 1 month of age, vital statisticians might ask themselves the question "Should we now abandon the infant mortality rate as an index and replace it by the stillbirth-neonatal rate, either by itself or in conjunction with the two separate components, a stillbirth rate and a 'neonatal rate'?" The remarkable conquest of the infectious diseases which have caused many infant deaths in the past has reduced the death toll for those over 1 month of age to such an extent that the upper limit of 12 months, normally used to define infant mortality, is much less important today than it was in the past. Although a "breaking point" at 6 months provides the most favorable comparisons for the United States, the authors believe that their analysis suggests that the neonatal rate may well become the "infant" mortality rate of the future, particularly when it is discussed in conjunction with the stillbirth rate.[1] The rapidity of medical progress requires that old statistical measures be supplanted by new measures which will provide a better delineation of the continuing problem; defining the health problem is one of the major functions of vital statistics. Furthermore, it is possible to foresee the time when we would wish to discard the 1 month concept in the stillbirth-neonatal rate and consider a time period of only 1 week.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Right of Lay Coroner or Undertaker to Give Opinion as to Cause of Death.—The claimant filed proceedings to recover a workmen's compensation award after the death of her husband. From the denial of an award, the claimant appealed to the Court of Appeals of Kentucky.

The deceased was a bus driver who was found dead in the front seat of his bus after the bus had apparently left the highway at a place where the road was straight. There were no eye witnesses, and the only question presented by this appeal was as to the cause of death.

The coroner and the undertaker, at whose establishment the coroner made his investigation, stated that there were no external marks on the body, with the exception of an indentation the same size as, and apparently produced by pressure of the dead body upon, the seam of the leather set. The coroner listed the cause of death as a cerebral hemorrhage. Both he and the undertaker testified that it was their belief that this was the cause of death. Neither were physicians, and both the referee and the workmen's compensation board ruled their testimony incompetent. The circuit judge in his opinion stated that the testimony of the undertaker would be competent under prior decisions of the supreme court of Kentucky. The Court of Appeals, without further dicussion of the point, merely said: "We agree." For other reasons the decision of the trial court was affirmed and the award denied.—*Hunt's Adm'x et al. v. Fuqua, 224 S. W. (2d) 917 (Ky., 1949).*

1. The variations in the neonatal and stillbirth rates suggest the desirability of using age 1 month rather than age 0 as the lowest age for quotations and computations of life expectancy values in population life tables. Some authorities have contended that the minimum age for quotation of life expectancy values should be several years, such as age 5, in order to avoid the difficulties inherent in curve smoothing of the raw data for these very early ages; it has been suggested that the lowest age should exceed the age at which life expectancy is maximum, while recognizing that that particular age is lower in each successive life table and that theoretically it might some day be age 0.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part II.* Various medical schools, April 24-25. *Parts I and II.* Various locations, June 19-21. Final date for accepting applications is May 19. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 21. *Oral.* Philadelphia, April 23-27, Chicago, Oct. 8-11. Sec., Dr. Curtis B. Hickcox, 745 Fifth Ave., New York 22.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral.* Washington, April 14-16. Sec., Dr. George M. Lewis, 660th Street, New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Boston, April 13-15. San Francisco, June 21-23. The oral examinations in the subspecialties will be held at the same time and places. *Written.* Oct. 16. Final date for acceptance of applications is May 1. Asst. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 3. Sec., Dr. W. J. German, 789 Howard Ave., New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC. *Oral Part II.* Atlantic City, May 21-27. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part I.* New York, April 21-22; Atlanta, April 28-29; Indianapolis, April 28-29; Denver, May 5-6. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various Centers, January 1951. Final date for filing applications is July 1, 1950. *Practical.* Boston, May 22-26; Chicago, Oct. 2-6; West Coast, Jan. 1951. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* San Francisco, May. Chicago, October. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Madison, Wis., April 11-12. St. Louis, Nov. 10-11. Sec., Dr. Robert A. Moore, 507 Euclid Ave., St. Louis.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, May 5-7; San Francisco, June 30-July 2. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Oral and Written.* Boston, Aug. 26-27. Final date for filing applications is April 1. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral.* May-June. Sec., Dr. Louis T. Byars, 4647 Pershing Avenue, St. Louis, Mo.

AMERICAN BOARD OF PROCTOLOGY: *Part I,* San Francisco, Dallas, Minneapolis and Philadelphia, May 13. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: San Francisco, June 23-24. Applications no longer accepted. Next examination, December 1950. Final date for filing applications is Sept. 1.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Chicago, week of June 18. Sec., Dr. R. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, Oct. 25. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 10-14, 1951. Final date for filing applications is Sept. 1, 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 21.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 27-29. Sec., Dr. D. G. Gill, 519 Dexter Avenue, Montgomery.

ARIZONA: * *Examination and Reciprocity.* Phoenix, April 18-19 and April 22. Sec., Dr. J. H. Patterson, 316 West McDowell Road, Phoenix.

ARKANSAS: * *Examination.* Little Rock, June 8-9. Sec., Dr. Joe Verser, Harrisburg. *Eclectic.* Little Rock, June 8-9. Sec., Dr. Clarence H. Young, 1415 Main Street, Little Rock.

CALIFORNIA: *Examination, Written.* San Francisco, June 19-22; Los Angeles, Aug. 21-24; Sacramento, Oct. 16-19. *Examination, Oral and Clinical for Foreign Medical School Graduates.* San Francisco, June 18; Los Angeles, Aug. 26; San Francisco, Nov. 12. *Reciprocity, Oral Examination.* San Francisco, June 17; Los Angeles, Aug. 19; San Francisco, Nov. 11. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

CONNECTICUT: * *Examination.* Hartford, July 11-12. Sec. to the Board, Dr. Creighton Barber, 160 St. Ronan St., New Haven. *Homeopathic.* Derby, July 11-12. Sec., Dr. Donald A. Davis, 38 Elizabeth St., Derby.

DELAWARE: *Examination.* Dover, July 11-13. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Examination.* Washington, May 8-9. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington 1.

FLORIDA: * Jacksonville, June 25-27. Sec. Dr. Frank D. Gray, 12 N. Rosalind Avenue, Orlando.

GEORGIA: *Examination.* Atlanta and Augusta, June. *Endorsement.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta 3.

HAWAII: *Examination.* Honolulu, July 10-13. Sec., Dr. I. L. Tilden, 1030 Kapiolani St., Honolulu.

IDAHO: Boise, July 10. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

ILLINOIS: Chicago, April 4-6. Superintendent of Registration, Mr. Charles F. Kervin, Capitol Bldg., Springfield.

INDIANA: *Examination.* Indianapolis, June. Sec., Dr. Paul B. Tindall, 1138 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 12-14. Sec., Dr. M. A. Royal, 506 Fleming Building, Des Moines 19.

KANSAS: Kansas City, June 7-8. Sec., Dr. J. F. Hassig, 905 N. 7th Street, Kansas City.

KENTUCKY: *Examination.* Louisville, June 14-16. Sec., Dr. Bruce Underwood, 620 S. 3rd Street, Louisville 2.

MAINE: *Examination and Reciprocity.* Augusta, July 11-12. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 20-23. Sec. Dr. Lewis P. Gundry, 1215 Cathedral Street, Baltimore 1. *Homeopathic.* Baltimore, June 20-21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, July 11-14. Sec., Dr. George L. Schadt, Room 37 State House, Boston 33.

MISSOURI: Examination. St. Louis, May 31-June 2 and June 7-9. Exec. Sec., Mr. John A. Hailey, Box 4, State Capitol Building, St. Louis.

NEBRASKA: * *Examination.* Omaha, June 5-7. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 1. Sec., Dr. George H. Ross, 112 Curry Street, Carson City.

NEW JERSEY: *Examination.* Trenton, June 20-23. Sec., Dr. E. S. Hallinger, 28 West State Street, Trenton.

NEW MEXICO: * Santa Fe, April 10-11. Sec., Dr. Charles J. McGoey, Coronado Building, Santa Fe.

NORTH CAROLINA: *Endorsement.* Pinehurst, May 1. *Written.* Raleigh, June 19-22. *Endorsement.* Raleigh, June 19. Sec., Dr. Ivan Procter, 226 Hillsboro Street, Raleigh.

NORTH DAKOTA: *Examination.* Grand Forks, July 5-7. *Reciprocity.* Grand Forks, July 8. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, June 14-17. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

OKLAHOMA: * *Examination.* Oklahoma City, June 7-8. Sec., Dr. Clinton Gallaher, 613 Braniff Building, Oklahoma City.

OREGON: *Endorsement.* Portland, April 28-29. *Written.* Portland, July . Exec. Sec., Mr. Howard I. Babbitt, 609 Failing Building, Portland 4.

RHODE ISLAND: * *Examination.* Providence, April 6-7. Chief, Division of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 26-29. *Reciprocity.* First Monday of each month. Sec., Dr. N. B. Heyward, 1329 Blanding Street, Columbia.

SOUTH DAKOTA: * Sioux Falls, July 18-19. Sec., Dr. C. E. Sherwood, 300 First National Bank Bldg., Sioux Falls.

TEXAS: * *Examination.* Austin, June 19-21. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, June. Dir., Dr. Frank E. Loer, 324 State Capitol Building, Salt Lake City.

VIRGINIA: *Examination.* Richmond, June 23-24. *Endorsement.* Richmond, June 22. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WISCONSIN: * Milwaukee, July 11-13. Sec., Dr. C. A. Dawson, River Falls.

WYOMING: *Examination.* Cheyenne, June 5. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARKANSAS: *Examination.* Little Rock, May 9. Sec., Mr. L. E. Gibson, 1002 Donaghey Building, Little Rock.

DISTRICT OF COLUMBIA: Washington, April 17-18. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Building, Washington.

FLORIDA: *Examination.* Gainesville, June 3. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

IOWA: *Examination.* Des Moines, April 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Detroit and Ann Arbor, May 12-13. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: *Examination.* Minneapolis, April 4-5. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: *Examination.* Omaha, May 3-5. Director, Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

OKLAHOMA: *Examination.* Oklahoma City, April 11. Sec., Dr. Clinton Gallaher, 613 Braniff Building, Oklahoma City.

OREGON: Portland, June 17. Sec., Dr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: *Examination.* Providence, May 10. Administrator of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Vermillion, June 3-3. Sec., Dr. Gregg M. Evans, 310 E. 15th Street, Yankton.

TEXAS: *Examination.* Austin, April 21-22. Sec., Brother Raphael Wilson, 306 Main Building, Austin.

WISCONSIN: Madison, April 1. Milwaukee, June 3. Sec., Prof. W. H. Barber, Ripon.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodical are available from 1939 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Amercian J. Digestive Diseases, Fort Wayne, Ind.

16:425-450 (Dec.) 1949

Cytologic Examination of Gastric Juice and Mucus. J. H. Tomenius. —p. 425.

Surgical Treatment of Peptic Ulcer: Surgical Indications and Operative Procedure. W. P. Kleitsch.—p. 428.

Proctology and the General Practitioner. A. J. Cantor.—p. 430.

Hyperplasia of Regional Lymph Nodes in Meckel's Diverticulum with Ulcerated Aberrant Gastric Mucosa. I. H. Einsel and T. H. Einsel. —p. 434.

Effects of Malnutrition upon Mothers and Infants in Naples, 1945. E. D. Kyhos, N. Vaglio and E. L. Sevringhaus.—p. 436.

American J. Obstetrics and Gynecology, St. Louis

58:833-1040 (Nov.) 1949

Address of the President. L. A. Emge.—p. 833.

*Value of the Vaginal Smear. R. M. Graham and J. V. Meigs.—p. 843.

What Constitutes an Adequate Cancer Detection Examination of the Cervix? With Comments on Supplementary Value of Surface Biopsy. E. Novak.—p. 851.

*Study of 135 Cases of Carcinoma in Situ of Cervix at the Free Hospital for Women. P. A. Younge, A. T. Hertig and D. Armtrong.—p. 867.

Results of Experimental Therapy of Carcinoma of Cervix. J. L. McKelvey, K. W. Stenstrom and J. S. Gillam.—p. 896.

Further Studies on Effect of Irradiation Therapy for Carcinoma of Cervix upon Urinary Tract. H. S. Everett, C. B. Brack and G. J. Farber.—p. 908.

Lymphatic Spread of Carcinoma of Cervix and of Body of Uterus: Study of 420 Necropsies. E. Henriksen.—p. 924.

Ovarian Carcinoma: Review of 200 Primary and 51 Secondary Cases. E. W. Munnell and H. C. Taylor Jr.—p. 943.

Quantitative Studies on Production, Destruction and Elimination of Chorionic Gonadotropin in Normal Pregnancy. R. B. Wilson, A. Albert and L. M. Randall.—p. 960.

Series of Potentially Abortive Ova Recovered from Fertile Women Prior to First Missed Menstrual Period. A. T. Hertig and J. Rock.—p. 968.

Influence of Diethylstilbestrol on Progress and Outcome of Pregnancy as Based on Comparison of Treated with Untreated Primigravidas. O. W. Smith and G. V. S. Smith.—p. 994.

Study of Placenta in Pregnancy Treated by Stilbestrol. S. C. Sommers, T. B. Lawley and A. T. Hertig.—p. 1010.

Etiology of Eclampsia: I. Water Balance. W. J. Dieckmann, A. G. Seski, C. P. McCartney and others.—p. 1014.

Value of the Vaginal Smear.—Graham and Meigs review their experience with the vaginal smear as an aid in the diagnosis of uterine cancer. Their observations were made in the six year period since 1942. In the examination of a total of 8,131 slides, 432 cancers were detected. The false positive error has diminished until in the last year it was only 0.04 per cent. A positive smear means the presence of cancer. False negative smears continue at about 10 per cent. This figure is due to lack of cells in advanced cases and a lack of exfoliation in others. Smear and biopsy diagnosis are complementary and not rival methods.

Study of 135 Cases of Carcinoma in Situ of the Cervix.—Younge, Hertig and Armstrong list the questions that must be answered to prove that carcinoma in situ of the uterine cervix is a preinvasive stage of cervical cancer. They feel that their experience with noninvasive carcinoma of the cervix for nearly twenty years enables them to answer some of these questions. Six cases of carcinoma in situ of the cervix have been observed in their clinic to progress to invasive cervical cancer in eleven months to six and one-half years. One patient with "marked anaplasia" of the cervix had cancer of the cervix two years later. The original biopsy showing anaplasia probably had been taken from the periphery of an invasive cancer. Carcinoma in situ of the squamous epithelium of the cervix represents either cancer in its early stage or noninvasive cancer at the periphery of an infiltrating lesion. Therefore, when it is found, invasive carcinoma must be ruled out by multiple biopsies or serial block study of the entire surface of the cervix. If no invasion is found on the first or second biopsy, repeated multiple biopsies and vaginal smears should be done for at least six months. If the carcinoma in situ involves only the surface epithelium and does not involve the cervical glands, thorough destruction of the surface lesion by cauterization or complete excision by sharp conization will apparently cure 85 per cent of such lesions. Reproductive function, thus, may be preserved in young women. Those not cured by these conservative methods should have a simple total hysterectomy removing as much of the vagina as is indicated by the Schiller test. Removal of the ovaries is not necessary. Evidence indicates that lymphatic spread does not occur from carcinoma in situ of the cervix. Pelvic lymph node dissection is not indicated in cases adequately studied before treatment. A simple total hysterectomy for carcinoma in situ after only one biopsy is hazardous, because invasive cancer has not been ruled out. Adequate evaluation of most of these cases can be done without hospitalization by the use of a good biopsy punch and an accurately interpreted Schiller test. Endocervical curettage, submitting blood clot as well as tissue, is an essential part of the study. The average age of women with carcinoma in situ of the cervix is 38 years. Vaginal smears are reasonably accurate (93 per cent) when carcinoma in situ involves the cervical glands but will reveal only 53 per cent of those showing just surface involvement. Pregnancy is not hazardous after carcinoma in situ of the cervix is cured by cauterization. Six such patients in this series have become pregnant. Five year follow-up study on 69 patients with cervical carcinoma in situ shows that none with adequate study before treatment has had a recurrence or died of the disease.

American Journal of Medicine, New York

7:569-698 (Nov.) 1949

SYMPOSIUM ON DIABETES MELLITUS

Carbohydrate Metabolism. DeW. Stetten Jr.—p. 571.

Studies in Experimental Diabetes. R. E. Haist.—p. 585.

Association of Diabetes Mellitus and Disorders of Anterior Pituitary, Thyroid and Adrenal Cortex. W. M. Balfour and R. G. Sprague. —p. 596.

Pregnancy Complicating Diabetes. P. White.—p. 609.

Arteriosclerosis and Diabetes. J. H. Baraeh.—p. 617.

Management of Diabetes in General Medical Practice. R. M. Wilder Jr.—p. 625.

Diabetic Coma: Metabolic Derangements and Principles for Corrective Therapy. G. M. Guest.—p. 630.

Changes in Volume of Plasma, Interstitial and Intracellular Fluid Spaces During Hydration and Dehydration in Normal and Edematous Subjects. S. E. Leard and E. D. Freis.—p. 647.

Insulin Mixtures: Experiences in Use of Extemporaneous Bottle Mixtures in Diabetic Clinic Patients. B. H. Wiesel, A. B. Riser and S. S. Kahn.—p. 655.

American Journal of Pathology, Ann Arbor, Mich.

25:1117-1272 (Nov.) 1949

Natural History of Pigmented Nevus: Factors of Age and Anatomic Location. H. Z. Lund and G. D. Stobbe.—p. 1117.

Myoblastoma. G. H. Murphy, M. B. Docherty and A. C. Broders. —p. 1157.

Juvenile Tuberculous Infection, Possibly of Avian Type. W. H. Feldman, D. W. Hutchinson, V. M. Schwarting and A. G. Karlson. —p. 1183.

Lymphoid Tissue and Its Relation to So-Called Normal Lymphoid Foci and to Lymphomatosis: I. Qualitative Study of Lymphoid Areas in Pancreas of Chickens. A. M. Lucas.—p. 1197.

Spontaneous Cardiac Lesions in Mice: Their Bearing on Attempts to Produce Experimental Carditis. F. G. Gray.—p. 1215.

Chronic Pancreatitis and Lithiasis: I. Clinicopathologic Study of 62 Cases of Chronic Pancreatitis. H. A. Edmondson, W. K. Bullock and J. W. Mehl.—p. 1227.

American Journal of Psychiatry, New York

106:401-480 (Dec.) 1949. Partial Index

Mental Disorders as Public Health Problem. R. H. Felix.—p. 401.

Integrity in Medical Testimony. H. L. Kozol.—p. 420.

Need for Uniform Discharge Statistics in Public Psychiatric Hospitals. W. E. Barton, H. J. Tompkins and A. B. Nadel.—p. 429.

Theoretical Aspects of Frontal Lobotomy and Similar Brain Operations. P. H. Hoch.—p. 448.

Hospital Treatment of Dementia Praecox: Part II. E. A. Ellison and D. M. Hamilton.—p. 454.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

62:617-776 (Nov.) 1949. Partial Index

Screen Intensification Systems and Their Limitations. R. E. Sturm and R. H. Morgan.—p. 617.
Clinical Potentialities of Screen Intensifying Systems. R. H. Morgan and J. F. Roach.—p. 635.
Infectious Mononucleosis: with Special Reference to Roentgenologic Manifestations. J. J. McCort.—p. 645.
*Angiocardiographic Diagnosis of Syphilitic Aortitis. I. Steinberg, C. Dotter, G. Peabody and others.—p. 655.
Intravenous Urography in Study of Vesical Neck Obstructions. W. J. Engel.—p. 661.
Deformities of Bladder Secondary to Ureteral Stone. B. Hall and H. O. Peterson.—p. 670.
Roentgen Diagnosis of Cholesteatoma of Middle Ear. J. G. Waltner. —p. 674.
*Malignant Degeneration of Benign Giant Cell Tumor of Bone. T. Leucutia and J. C. Cook.—p. 685.
Value of Upright Roentgenograms of Maternal Pelvis at or Near Term with Particular Reference to Placenta Praevia. H. R. Crews, A. O. Hampton and J. P. Moore.—p. 707.
Chondroma of Larynx: Report of Case. M. D. Ryan and J. Zizmor. —p. 715.
Neutron and Roentgen-Ray Effects on Protein Content of Rat Intestine. M. H. Ross and J. O. Ely.—p. 718.

Angiocardiographic Diagnosis of Syphilitic Aortitis.—Steinberg and co-workers performed angiocardiography on 60 patients with syphilitic aortitis. Angiocardiography greatly facilitates the early diagnosis of syphilitic aortitis by revealing clearly the gross anatomy of the entire thoracic aorta. A diagnosis can often be made with this procedure in the absence of conclusive clinical or roentgen evidence. The angiocardiographic signs of syphilitic aortitis include aortic dilatation (above 38 mm., mid-ascending aorta in 51 patients), irregularity of lumen (51 patients), calcification of ascending aorta (16 patients), aortic tortuosity (51 patients), variations in thickness of the aortic wall and the presence of aneurysm (25 patients). Dilatation, the cardinal angiocardiographic sign of syphilitic aortitis, may also be caused by hypertension, aortic valvular insufficiency of nonsyphilitic cause, or coarctation of the aorta. It is not pathognomonic of syphilis of the aorta. Aortic dilatation may be absent in early syphilitic aortitis. Uncomplicated arteriosclerosis apparently does not cause aortic dilatation beyond the upper limit of 38 mm. The diagnosis of syphilitic aortitis may be made sooner and put on a sounder anatomic basis by means of angiocardiography, thus facilitating the earlier, more adequate treatment occasioned by the cardiovascular complications of syphilis.

Malignant Degeneration of Benign Giant Cell Tumor of Bone.—From 1923 to 1947 Leucutia and Cook treated 77 patients with benign giant cell tumor of bone at the Harper Hospital, Detroit. The treatment consisted of curettage and postoperative roentgen therapy up to 1929 and of roentgen therapy as the principal procedure since 1930. Five patients died, 3 from incidental disease and 2 of subsequent sarcomatous change of the benign giant cell tumor. Five patients are untraced; 1 of these had malignant degeneration of the benign giant cell tumor. A sarcomatous change of a benign giant cell tumor developed in an additional 4 patients, in whom a satisfactory final result was obtained after further treatment, either by surgery or irradiation. Thus 7 of the 77 patients (9 per cent) showed malignant degeneration. This was noted after routine roentgen treatment in 4 instances. The sarcomatous neoplasia was observed in 1 of these 4 patients before the contemplated series of treatments were concluded, so that the lesion was probably malignant from the beginning. In another, the roentgen dose given was so small that its significance can almost certainly be disregarded. Repeated pathologic fractures complicated the picture in the remaining 2 cases. The malignant degeneration apparently was spontaneous in 1 of the remaining 3 cases. The sarcomatous change developed after operation in the last 2 cases and after curettement with filling of the cavity with bone chips in 1. An eighth case is included in which fibrosarcoma of the soft tissues and sternum developed eighteen years after gross overirradiation for thymic enlargement. Malignant degeneration of a giant cell tumor of bone occurs in a limited number of cases (10 to 15 per cent) as a natural sequence of events unaffected by the type of treatment given.

American Journal of Surgery, New York

78:547-800 (Nov.) 1949. Partial Index

Osteo-Arthritis Aggravated by Trauma. C. R. Hanlon and W. L. Estes Jr.—p. 556.
Intra-Articular Lesions Caused by Fat Pad Hypertrophy. J. K. Stack and S. Chasten.—p. 570.
Treatment of Evulsion of Collateral Ligaments of Knee. T. B. Quigley. —p. 574.
Suction Socket Prosthesis for Above-Knee Amputees: Interim Report of Veterans Administration Experimental Program. A. Thorndike. —p. 603.
Early Ambulation Following Internal Fixation in Arthrodesis of Spine. G. A. Kernwein.—p. 614.
Comminuted Colles' Fracture. G. Hammond.—p. 617.
Arthrodesis of Wrist Joint: Graft from Inner Table of Ilium. A. A. Butler.—p. 625.
Mechanical Problems in Open Reduction of Fractures. R. H. Kennedy and M. M. Stone.—p. 644.
Farm Accidents: Clinical and Statistical Study Covering Twenty Years. R. A. Calandruccio and J. H. Powers.—p. 652.
Analysis of Management and Complications of Multiple (Three or More) Rib Fractures. D. A. Cameron, P. V. O'Rourke and C. W. Burt. —p. 668.
Treatment of Penetrating and Perforating Chest Wounds: Discussion of Its Complication, Organized Hemothorax. V. M. Iovine.—p. 677.
Massive Rupture of Liver. G. B. Sanders, C. H. Macguire and R. H. Moore Jr.—p. 699.
Extensive Resection of Small Intestine. E. C. Weckesser, A. B. Chinn, M. W. Scott Jr. and J. W. Price.—p. 706.
Management of Rupture of Duodenum Due to Violence. V. E. Siler. —p. 715.
Intra-Arterial Blood Transfusion. S. F. Seeley.—p. 733.
Role of Upper Cervical Roots in Production of Pain in Head. C. R. Hunter and F. H. Mayfield.—p. 743.
Marjolin's Ulcer: Preventable Threat to Function and Life. D. M. Glover and C. L. Kiehn.—p. 772.
Treatment of Human Bites of Hand. E. L. Grimes and L. C. Manges Jr. —p. 793.

Annals of Allergy, Minneapolis

7:443-584 (July-Aug.) 1949

Urticaria Photogenica: Report of 2 Cases, 1 of Them Associated with Purpura Photogenica. S. Epstein.—p. 443.
Clinical Application of New Piperazine Compound. S. H. Jaros, J. C. Castillo and E. J. De Beer.—p. 458.
Antigen-Antibody Mechanisms in Neurotropic Virus Diseases. B. Campbell and R. A. Good.—p. 471.
*Protein and Vitamin Metabolism in Allergic State: Preliminary Study. T. J. Adams.—p. 482.
Observations on Severe Penicillin Reactions. M. H. Samitz and P. N. Horvath.—p. 490.
Bronchial Asthma Caused by Inhalation of Wood Dust. D. Ordman. —p. 492.
Allergic Arthritis. J. Miller.—p. 497.
Clinical Experiences with B-(P-Methylbenzhydryloxy)-Ethyldimethylamine Hydrochloride: New Antihistaminic. P. M. Schulman and A. M. Fucha.—p. 502.
Phenergan (R. P. 3277): Preliminary Report of Clinical Effectiveness. M. H. Shulman.—p. 506.
Absence of Effects of Benadryl on Hematopoietic System. H. C. Leopold.—p. 510.
Micropowdered Aminophylline or Theophylline Inhalation Therapy in Chronic Bronchial Asthma: Evaluation by Recorded Vital Capacity Changes. G. V. Taplin, A. L. Gregoper and G. Scott.—p. 513.
Allergy of Eye Associated with Migraine Headache: Case Report. B. M. Zussman.—p. 524.
Cutaneous Reactions to Tobacco Antigen in Allergic and Nonallergic Children. A. Oliveira Lima and G. Rocha.—p. 528.
Management of Anesthesia for the Allergic Patient. R. E. Brenneman. —p. 534.
Treatment of Intrinsic Bronchial Asthma with Autogenous Vaccine. A. C. Grorud.—p. 540.

Protein and Vitamin Metabolism in the Allergic State.—Adams points out that attempts at successful management of allergic patients with conventional symptomatic treatment, elimination diets and/or topical medication have been generally disappointing. He expresses the opinion that dealing with the allergic state resolves itself chiefly into a metabolic study. The problem may be attacked with therapeutic nutrition, which includes a biologically potent protein hydrolysate, the complete vitamin B complex mainly from mixed natural sources and therapeutic quantities of all other vitamins incorporated in one formula in balanced proportion. Into 20 Gm. (2 tablespoonfuls) of the hydrolysate were introduced ½ teaspoonful (1.7 Gm.) of the B complex elixir and ¼ teaspoonful (0.9 Gm.) of the vitamin emulsion. This combination was creamed thoroughly and brought up to 2 fluid ounces (60 cc.) with hot water. The resultant mixture was smooth and palatable and served as a unit dose. It was termed the "basic three," as it provided amino acids, the entire B complex and all other vitamins for which human need has been established. Dosage ranged from three

to six or even eight 2 ounce doses daily. Establishing the patient on optimal nutrition with the "basic three" formula not only resulted in relief, healing and apparent cure of the allergic syndrome but also enabled the patient to tolerate foods and other allergenic agents to which he had been sensitized prior to treatment.

Annals of Surgery, Philadelphia

130:857-984 (Nov.) 1949

*Cause of Death in Strangulation Obstruction: Experimental Study: I. Clinical Course, Chemical, Bacteriologic and Spectrophotometric Studies. P. Nemir Jr., H. R. Hawthorne, I. Cohn Jr. and D. L. Drabkin.—p. 857.
*Id.: II. Lethal Action of Peritoneal Fluid. P. Nemir Jr., H. R. Hawthorne, I. Cohn Jr. and D. L. Drabkin.—p. 874.
*Fibrous Dysplasia of Bone. J. N. Profitt, B. McSwain and E. H. Kalmon Jr.—p. 881.
Carcinoma of Lower Lip: Ten Year Survey. S. Z. Maroon and R. H. Kennedy.—p. 896.
Primary Carcinoma of Ureter. F. G. Harrison, H. L. Warres and J. A. Post.—p. 902.
Aneurysm of Common Carotid Artery. C. K. Kirby, J. Johnson and J. G. Donald.—p. 913.
Postoperative Diabetes Mellitus Following Resection of Body and Tail of Pancreas for Secondary Invasion by Gastric Cancer. A. Brunschwig and F. Gentil.—p. 921.
Clinical Use of Polyethylene Tubing for Intravenous Therapy: Report on 72 Cases. B. J. Duffy Jr.—p. 929.
Effect of Diathermy upon Abdominal Adhesions: Experimental Study. R. K. Minge and C. Dennis.—p. 937.
Effect of Dicumarol upon Postoperative Peritoneal Adhesions. B. H. White.—p. 942.
Effect of Heparin on Gelatin Sponge Hemostasis. W. J. Grove and C. W. Vermeulen.—p. 948.
Sarcoidosis Producing Portal Hypertension: Treatment by Splenectomy and Splenorenal Shunt. R. A. Mino, A. I. Murphy Jr. and R. G. Livingstone.—p. 951.
Obstruction of Inferior Vena Cava Above Renal Veins: Report of Case with Recovery of Renal Resection Following use of Artificial Kidney. C. B. Ripstein and G. G. Miller.—p. 958.
Evacuation of Traumatic Extradural Hemorrhage from Posterior Fossa. F. C. Grant and G. M. Austin.—p. 963.
Masculinizing Tumor of Ovary. D. Kershner, M. Jacobi and L. N. Kessler.—p. 967.
Appendiceal Calculi: Their Pathologic and Clinical Significance. R. L. Lowenberg.—p. 975.
Combination Probe, Dilator and Irrigator for Common Duct Surgery. A. L. Wilkie.—p. 980.

Cause of Death in Strangulation Obstruction.—Nemir and his co-workers observed that, late in the course of strangulation obstruction in dogs intensively treated for shock, dehydration and electrolyte imbalance, the peritoneal fluid changed from a pink, odorless, coagulable fluid to a black or reddish black, malodorous, noncoagulable fluid. In view of the rapid demise of the animal after the appearance of the black fluid in the peritoneal cavity and its rapid absorption into the blood stream, it seemed likely that some lethal factor was present in this fluid. Peritoneal fluid, removed from the strangulated animals at various intervals, was injected into normal animals by both intravenous and intraperitoneal routes. It was found that the pink or strawberry-colored peritoneal fluid, removed from animals with a strangulation obstruction, which is due to the presence of blood and unchanged hemoglobin, is nontoxic on injection into normal, recipient animals either by the intraperitoneal or intravenous routes, even when rapidly administered in amounts up to 50 cc. per kilogram of body weight. The late, or black, peritoneal fluid, which has been shown to be derived at least in part from the lumen of the strangulated gut, is lethal on injection into normal animals by either the intraperitoneal or intravenous route when administered in much smaller amounts than the pink fluid. The toxicity of the peritoneal fluid samples removed in experimental strangulation obstruction is proportional to the content of unidentified pigments responsible for the abnormal spectrum of the black peritoneal fluid. While the abnormal spectrum has served as a measure of the toxicity of the fluid on injection into other animals, there is no evidence at present to identify the pigment itself as the toxic agent.

Fibrous Dysplasia of Bone.—Profitt and his collaborators analyze the records, roentgenograms and microscopic sections of patients who had been given a diagnosis of giant cell tumor, solitary bone cyst, osteitis fibrosa cystica or Paget's disease (osteitis deformans). They discovered 4 cases of fibrous dysplasia previously diagnosed as osteitis fibrosa cystica and 1 case of what was originally thought to be a solitary bone cyst. They report observations in 7 such patients. There were spontaneous fractures in 4 patients, and the remaining 3 had pain. There was disability even in the patients with involvement of only the ribs. Tenderness over the diseased areas was present in all cases, but in the cases in which fracture had not taken place there was no palpable tumor. The bone lesions were usually irregular areas of rarefaction which varied greatly in size and shape. The phosphorus levels were normal, and the calcium levels were at the upper limits of normal or slightly elevated. Exploration of the bone revealed solid tissue. Microscopic examination makes it possible to differentiate fibrous dysplasia from giant cell tumor but not from solitary bone cyst or osteitis fibrosa cystica. The authors stress that fibrous dysplasia of bone can be differentiated from other disease of bone by proper interpretation of the clinical, laboratory, roentgenologic, operative and pathologic findings. Only one of these studies is rarely adequate, but in most instances of multiple bone involvement by fibrous dysplasia, the diagnosis can be made upon the basis of the roentgenologic findings and the calcium and phosphorous levels. Healing usually occurs following fracture, just as it does in bones in which there are cysts. Healing with new bone formation occurs after curettage. In case of painful fibrous dysplasia of a rib, the rib and intercostal nerve should be excised.

Archives of Dermatology and Syphilology, Chicago

60:1063-1254 (Dec.) 1949

Role of Emotion in Disorders of Skin. O. S. English.—p. 1063.
Old Dermatologic Drugs Which Should Be Retained. M. Rayner.—p. 1077.
Specific Sensitivity to Foods as Factor in Various Types of Eczematous Dermatitis. C. S. Livingood and D. M. Pillsbury.—p. 1090.
Traumatic Marginal Alopecia in White Women. S. Ayres Jr., S. Ayres III and J. I. Mirovich.—p. 1116.
Superficial Mycoses of Veterans: II. Dermatophytosis and Cutaneous Moniliasis; Correlation of Clinical Manifestations and Etiologic Agent. R. C. Burke and F. E. Baumgarner.—p. 1130.
Sarcoma Involving Skin. E. Epstein.—p. 1130.
*Beryllium Granulomas of Skin. F. R. Dutra.—p. 1140.
"Macules" of Leprosy. H. L. Arnold Jr.—p. 1148.
Fate of Central Nevus in Leukoderma Acquisitum Centrifugum. M. Leider and A. A. Fisher.—p. 1160.
Is Lichen Urticatus a Form of Urticaria? T. Cornbleet.—p. 1167.
Hereditary Anhidrotic Ectodermal Dysplasia: Clinical and Pathologic Study. B. Y. Upshaw and H. Montgomery.—p. 1170.
*Flea Problem in California. C. J. Lunsford.—p. 1184.

Beryllium Granulomas of Skin.—Tissue samples received from 4 persons in whom subcutaneous granulomas developed after beryllium compounds had been traumatically introduced into the skin were examined at the Kettering Laboratory. The laboratory also received tissues from an additional person in whom granulomatous inflammation of the subcutaneous tissues followed the introduction of metallic beryllium. The clinical data were essentially similar for all 5 patients. In 4 the beryllium was embedded in the skin by accidental breaking of fluorescent lamp tubes and puncturing of the skin by glass fragments. The fluorescent powder which lines tubes of this type is comprised of a calcined mixture of zinc oxide, manganese oxide, beryllium oxide and silica. In these 4 patients the lacerations healed with production of excess fibrous tissue. Two of the lesions, when first seen, were believed to be simple keloids. All four lesions opened on one or more occasions after initial healing to discharge thick, grayish white necrotic material. The period from injury to excision varied from four months to nine years. A fifth patient, a young woman who worked at cutting metallic beryllium with a machine, had lacerated her finger during her work. A granuloma which developed failed to heal over a period of four years, so that finally a complete excision of the lesion was made. The histologic relationship of granulomas of the skin and similar granulomas which occur in the lungs of persons who have inhaled beryllium-containing dusts is described. Cure followed excision of the lesions in all cases.

Flea Problem in California.—According to Lunsford fleas are more of a nuisance in California, particularly in the San Francisco Bay area, than elsewhere in the United States. He discusses the entomology of fleas, the clinical picture of the reaction to flea bites, the differential diagnosis and the pathologic

aspects. He relates his experiments with flea antigens and experimental studies on reactions to flea bites. Feeding fleas on newborn infants confirmed the clinical observation that persons first have to be bitten by fleas in order to become sensitive. Feeding fleas on residents of California and on newcomers proved that most persons become immune after having been bitten over long periods. Most cases of "papular urticaria" in California are in reality due to flea bites. Further studies and better antigens are needed for the investigation of the value of artificial desensitization. Oil of citronella, pyrethrum, 612 (2-ethyl-1,3-hexanediol), DDT, petrolatum and camphor applied locally are of value as repellents. The continued taking of quinine by mouth or of thiamine hydrochloride by mouth or injection is of clinical and experimental value in the repelling of fleas. Application of modern insecticides, such as DDT, to the known breeding places of fleas offers the most practical solution of the problem.

Archives of Ophthalmology, Chicago

43:685-860 (Dec.) 1949

Operation for Ptosis Utilizing Superior Rectus Muscle. R. N. Berke. —p. 685.
Ocular Effects of Choline Esters. K. C. Swan.—p. 709.
Surgical Treatment of Recurrent Pterygium. J. S. McGavic.—p. 726.
Embryonal Cataract Associated with Interstitial Keratitis and Syphilitic Choroiditis: Report of Case. E. Rosen.—p. 749.
Vision of Albinos. R. T. Edmunds.—p. 755.
Optic Neuroencephalomyelopathy (Devic's Disease): Report of Case. R. H. Dennis and L. L. Calkins.—p. 768.
Keratoplasty in Treatment of Keratoconus. R. Castroviejo.—p. 776.
Unilateral Thrombosis of Cavernous Sinus Treated with Penicillin and Sulfadiazine: Report of Case with Follow-Up Study. M. E. Gans and J. A. Gans.—p. 801.
Herpes Zoster Ophthalmicus Sine Eruptione. J. V. M. Rosa.—p. 808.
Corneal Transplantation: I. Visual and Cosmetic Results. F. C. Stansbury.—p. 813.

Arizona Medicine, Phoenix

6:1-84 (Nov.) 1949

Masked Collagen Disease. C. A. L. Stephens Jr. and W. P. Holbrook.—p. 21.
Treatment of Nasal Polyps. K. M. Simonton.—p. 24.
Mediastinal Tumors. T. B. Wiper.—p. 28.
Doctors, Parents and Psycho-Somatic Diseases. A. K. Duncan.—p. 31.

California Medicine, San Francisco

71:385-458 (Dec.) 1949

Problem of Acquired Short Esophagus: Report of 18 Patients. H. B. Stephens.—p. 385.
*Experience with Vitamin E in Coronary Disease. H. P. Rush.—p. 391.
Alcoholism: Role of Psychiatry in Meeting the Problem. C. W. Irish. —p. 394.
Laryngeal Granulomata Following Intratracheal Anesthesia. S. Jesberg and N. Jesberg.—p. 398.
Clinical Usefulness of Vaginal Smear. M. Rosenthal.—p. 400.
*Subacute Bacterial Endocarditis: Report on 57 Patients Treated with Massive Doses of Penicillin. G. C. Griffith and D. C. Levinson. —p. 403.
Multiphasic Screening Survey in San Jose. C. K. Canelo and D. M. Bissell.—p. 409.
Preparation and Sterilization of Ophthalmic Solutions. M. J. Hogan. —p. 414.
Giant Meningioma. F. W. Lusignan, G. O. Cross and L. H. Arnstein. —p. 417.
Thrombin in Control of Upper Gastrointestinal Hemorrhage: Report of 3 Cases. R. L. Byron Jr., J. McGee and H. G. Bell.—p. 419.
Death from Metastatic Melanoma Thirty-Six Years After Removal of Probable Primary Ocular Tumor. L. M. Hutner.—p. 420.
Tetraethylammonium Chloride in Post-Herpetic Neuralgia. R. Wallerstein.—p. 421.
Stellate Block for Relief of Simultaneous Angina Pectoris and Motor Aphasia. S. M. Perry and E. W. Amyes.—p. 422.

Vitamin E in Coronary Disease.—Rush treated 54 cardiac patients with 300 mg. of vitamin E daily, usually in the form of ephynal acetate.® The drug was given orally in three equal doses. The treatment was continued for at least three months and in many instances for twenty-six months. The patients treated were divided into 3 groups. Twelve of the first group had angina of effort without objective indications of heart disease. Twenty patients of group 2 had angina of effort and showed some positive objective signs of heart disease, diagnosed as coronary sclerosis. Twenty-two patients of group 3 had had myocardial infarctions and had angina pectoris as a residual symptom when vitamin E therapy was started. The incidence of improvement among patients in the series was no greater than in a control group not given vitamin E. There was no significant difference in the subjective evidence of relief for patients given vitamin E and those given placebos. When some of the patients being treated with vitamin E were given placebos instead, for a period during the course of observation, subjective improvement was not diminished. Specific benefits attributable to vitamin E therapy could not be shown.

Massive Doses of Penicillin in Subacute Bacterial Endocarditis.—Griffith and Levinson present observations on 57 patients with subacute bacterial endocarditis. The doses varied between 500,000 and 20,000,000 units per day. The diagnosis was confirmed in some patients by blood culture, in others by postmortem examination. When the diagnosis was established by blood culture, the in vitro sensitivity of the organism to penicillin was determined and penicillin was administered by continuous intramuscular infusion in a dosage calculated to produce blood levels of penicillin four to five times that required for in vitro inhibition. Penicillin was given for twenty-one days, and blood cultures were made periodically during and after treatment. Of the 57 patients, 38 were cured (66.7 per cent) and 19 died (33.3 per cent). Of the 19 who died, 3 did so within forty-eight hours of hospitalization and 7 died despite adequate treatment; 3 of the 7 died of cerebral emboli, 2 because of resistance to penicillin and streptomycin, 1 because of congestive heart failure, and 1 of undetermined cause. The remaining 9 who died were considered to have been inadequately treated, in that there was (1) failure to ascertain sensitivity, (2) inadequate dosage of penicillin, (3) delay in starting treatment or (4) failure to recognize mixed infections. There were 5 fatalities in patients with repeatedly sterile blood cultures during life. A green-producing streptococcus was recovered from all of these at necropsy. To determine how long treatment should be withheld in patients with repeatedly sterile blood cultures, 140 cases of subacute bacterial endocarditis, in which positive blood cultures had been obtained, were reviewed. It was determined that if blood cultures taken during the first two days are reported sterile, the chance of subsequent cultures proving positive is minimal. Therefore, for patients in whom the diagnosis seems otherwise obvious, delaying treatment for more than two days is not justified even though the blood culture be sterile. In cases in which blood cultures are repeatedly sterile, a dosage of 6,000,000 to 10,000,000 units of penicillin daily for twenty-one days is advisable. High bacterial resistance to penicillin and streptomycin was found in 4 fatal cases. In 1 of these the infecting organism was a green-producing streptococcus and in 3 it was Staphylococcus albus.

Illinois Medical Journal, Chicago

96:277-336 (Nov.) 1949

Retrolental Fibroplasia. R. O. Rychener.—p. 299.
Treatment of Common Colds with Antihistaminic Drug. J. M. Brewster.—p. 302.
Maternal Mortality in Illinois Hospitals, 1943-1947. C. Newberger. —p. 306.
Hemorrhoidectomy: Method for Elimination of Postoperative Pain Due to Sphincter Spasm. E. D. Blocmenthal and R. M. Bendix.—p. 311.
Estimation of Blood Requirements of Surgical Patient. L. S. Mann. —p. 314.
*Unrecognized Pernicious Anemia in Patients with Chronic Arthritic Complaints. W. J. Ford.—p. 318.
Eventration of Intestine Through Vagina Following Vaginal Hysterectomy. P. C. Fox.—p. 321.

96:337-398 (Dec.) 1949

The Menace of the Coming Months. L. C. Arends.—p. 357.
Neurosurgery and Illinois State Hospital System. E. Ohlberg.—p. 364.
Treatment of Ante-Partum Hemorrhage. J. A. Hardy Jr.—p. 367.
Proctologic Problems of Infants and Children. J. B. Gillespie.—p. 371.
Management of Vaginal Discharges. W. J. Reich and M. J. Neebtow.—p. 376.
Intensive Treatment of Psychoses. Factors Influencing Improvement and Relapse. G. Fenyes.—p. 378.
Coarctation of Aorta and Aortic Insufficiency. S. Zivin and S. L. Silver.—p. 385.

Unrecognized Pernicious Anemia Mistaken for Arthritis.—Ford shows that subacute combined cord degeneration might, in the absence of an accurate clinical appraisal, be improperly diagnosed and treated as chronic arthritis, with

deleterious results to the patient. He reports 2 women, aged 63 and 74, in whom subacute combined cord degeneration progressed because the patients were mistakenly treated for chronic arthritis. Intensive liver therapy, although instituted late, led to partial recovery. The author feels that the gravity of the neurologic complications of pernicious anemia and the incomplete recovery on liver therapy make early diagnosis important.

Journal of Immunology, Baltimore

63:117-218 (Oct.) 1949

Studies on Pathogenesis and Immunity in Tularemia. C. M. Dewan, L. Buchele and E. P. Edgar.—p. 117.
Study of Fowl Pox Virus Titration on Chorio-Allantois by Pock Counting Technique. D. B. W. Reid, J. F. Crawley and A. J. Rhodes. —p. 165.
Studies on Antigenicity of Cytochrome C. E. L. Becker and J. Munoz. —p. 173.
Method for Purifying Diphtheria Toxoid and Combining it with Protamine. V. Ross.—p. 183.
Biophysical Studies of Blood Plasma Proteins: XI. Immunological and Electrophoretic Studies of Immune Chicken Serum. H. F. Deutsch, J. C. Nichol and M. Cohn.—p. 195.
Studies on Local Antibody Formation in Nervous System of Paralyzed, Poliomyelitis Convalescent Monkeys. A. B. Sabin and A. J. Steigman.—p. 211.

63:219-340 (Nov.) 1949. **Partial Index**

Chemical and Immunological Properties of Diphtheria Toxoid Purified by Ammonium Sulfate Fractionation. L. Levine, L. Wyman and G. Edsall.—p. 219.
Measurement of Neutralizing Antibodies to Streptococcal Hyaluronidase by Turbidimetric Method. S. Harris and T. N. Harris.—p. 233.
Inhibitory Effect of Human Saliva on Hemagglutination by Influenza Virus A (PR8 Strain) and Swine Influenza Virus. J. H. Schasm, F. Lanni and J. W. Beard.—p. 261.
Studies on Inactivation of Influenza and Newcastle Disease Virus by Specific Lipid Fraction of Normal Animal Sera. J. P. Utz.—p. 273.
Specific Serological Reactions Which Follow Naturally Acquired Mumps. A. L. Florman and J. H. Kutch.—p. 281.
Quantitative Study of Diphtheria Toxin-Antitoxin Reaction in Sera of Various Species Including Man. M. Cohn and A. M. Pappenheimer Jr.—p. 291.
Immunization of Laboratory Workers with Purified Venezuelan Equine Encephalomyelitis Vaccine. R. Randall, F. D. Maurer and J. E. Smadel.—p. 313.
Dispersion of I^{131} and Other Tracers Injected into Embryonated Eggs. R. M. Taylor and A. C. Sarnz.—p. 319.
Failure of Merodicein to Modify Influenza Virus Infections. T. Francis Jr. and K. Penttinen.—p. 337.

Journal of Nutrition, Philadelphia

39:287-444 (Nov.) 1949. **Partial Index**

*Observations on Folic Acid Deficiency in Chick in Presence of Vitamin B_{12}. C. A. Nichol, L. S. Dietrich, C. A. Elvehjem and E. B. Hart. —p. 287.
*Production of Antibodies in Protein Depleted and Repleted Rabbits. D. G. Gemeroy and A. H. Koffler.—p. 299.
Effects of Dietary Depletion of Riboflavin. M. K. Horwitt, O. W. Hills, C. C. Harvey and others.—p. 357.
Relationship of Carbohydrate Metabolism to Protein Metabolism: III. Further Observations on Time of Carbohydrate Ingestion as Factor in Protein Utilization by Adult Rat. H. N. Munro.—p. 375.
Role of Pyridoxine in Economy of Food Utilization. B. Sure and L. Easterling.—p. 393.
Fatal Vitamin E Deficiency Disease in Rats Characterized by Massive Lung Hemorrhage and Liver Necrosis. E. L. Hove, D. H. Copeland and W. D. Salmon.—p. 397.
Nutritional Effects of Heat on Food Proteins, with Particular Reference to Commercial Processing and Home Cooking. H. H. Mitchell, T. S. Hamilton and J. R. Beadles.—p. 413.

Folic Acid Deficiency in Presence of Vitamin B_{12}.—Nichol and associates say that previous work has shown that chicks given a purified diet deficient in folic acid fail to grow normally and develop anemia. The administration of vitamin B_{12} or refined liver extract alone had no effect on hemoglobin regeneration but did produce some growth response. When these chicks were kept on the folic acid-deficient ration for several weeks after treatment with liver extract or vitamin B_{12}, they manifested body tremors, extended, quivering wings and finally complete paralysis. None of these symptoms appeared in the control groups. Further experiments revealed that folic acid deficiency in chicks fed a purified ration was accentuated by supplying vitamin B_{12} as the crystalline material, by injection or as a concentrate added to the ration. The relation of folic acid and vitamin B_{12} to the previously described vitamins B_{12} and B_{13} is discussed.

Role of Protein in Antibody Response.—Gemeroy and Koffler studied the antibody response to beef serum in protein-depleted and protein-repleted rabbits. It was found that antibody response is higher in repleted than in depleted animals. It is only slightly higher in rabbits fed a commercial diet than in the protein-depleted animals. A high protein diet supplemented by other essential dietary factors is valuable for the production of hyperimmune serums in rabbits.

Laval Médical, Quebec

14:1127-1274 (Nov.) 1949

*Adrenal Pheochromocytoma Without Hypertension. P. A. Poliquin and P. Dupuis.—p. 1127.
Role of Anesthetist in Pylorointestinal Obstructions. L. Rinfret.—p. 1148.
Treatment of Whooping Cough and Other Diseases by Means of Variation of Atmospheric Pressure. R. Cruchet.—p. 1165.

Adrenal Pheochromocytoma Without Hypertension.—Poliquin and Dupuis report a woman aged 53 with an abdominal tumor in the left hypochondrium, accompanied with pain and associated with constipation, anorexia, asthenia and a weight loss of 30 pounds (13.6 Kg.). The arterial tension was normal and never exceeded 130. The patient had no symptoms of vasoconstriction or of disturbances of metabolism in general or of the carbohydrate metabolism. Clinical study was not suggestive of a pheochromocytic tumor. Roentgenologic examination revealed a tumor localized at the superior pole of the kidney. At laparotomy, a left retroperitoneal tumor, the size of the head of a full term fetus and adherent to the tail of the pancreas, was removed. Postoperative shock was probably due to the manipulation, which caused a hyperadrenalemia by expression. Thus peripheral vasoconstriction was induced, causing acceleration of the heart action with secondary cardiac decompensation. Oxygen, digitoxin and vasodilators should be administered in such a case rather than epinephrine, which would make the condition worse. Microscopic examination of the tumor revealed a typical paraganglioma (pheochromocytoma). Only a small peripheral border consisted of living tissue, while the center consisted of necrotic, mucoid or gelatinous tissue. The tumor did not have a capsule in a strict sense, and the peripheral elements were not invasive and were lost in a layer of compact, fibrosclerous tissue. The tumor was therefore considered benign. The patient is still alive four years after the operation.

Military Surgeon, Washington, D. C.

105:357-440 (Nov.) 1949. **Partial Index**

Diabetes Mellitus in U. S. Army in World War II. A. Marble. —p. 357.
Pilonidal Cysts and Sinuses: Acceptable Method for Eradication by Block Excision with Primary Closure. J. M. Salyer and J. H. Forster.—p. 364.
Fracture of Os Peroneum: Case Report. E. A. Brav and J. B. Chewning.—p. 369.
Schizophrenia: Fundamental Concepts of Eight Noted Psychiatrists. W. Simon.—p. 375.
Granulomatous Tumor of Recto-Sigmoid Producing Megacolon. W. J. Carson.—p. 382.
Aureomycin in Near Fatal Atypical Pneumonia: Case Report. I. G. Frohman and M. Elkins.—p. 386.
Patient's Evaluation of Group Therapy. K. G. Rew—p. 389.
Psychology and Psychopathology: Their Place in Treatment of Pulmonary Tuberculosis. J. B. Plass.—p. 396.
Extrahuman Sources of Poliovirus: Concept on Pathogenetics of Viruses. R. deR. Barondes.—p. 400.

105:441-522 (Dec.) 1949

Common Cold Can be Controlled. J. M. Brewster.—p. 441.
Bronchial Adenomas. B. E. Konwaler.—p. 448.
Preventive Medicine and Rehabilitation. C. D. Shields.—p. 451.
Analysis of Navy Obstetrical Service. F. B. Smith.—p. 454.
Surgical Importance of Amebiasis. W. P. Kleitsch and L. D. Cherry. —p. 458.
Severe Keratosis Blennorrhagica Complicating Reiter's Disease. E. Yordan and E. L. Kehoe.—p. 466.
Psychiatric Screening in Its Relation to Veterans Administration. R. S. Clark.—p. 473.
Intravenous Procain Hydrochloride in Treatment of Acute Renal Insufficiency Following Heat Stroke: Case Report. W. E. Marchand and D. Riemer.—p. 475.
Vitallium Replacement of Lunate in Kienbock's Disease. E. M. Lippman and L. J. McDermott.—p. 482.
Salicylate Blood Levels as Affected by Various Drugs. T. Levy. —p. 485.
Effects of Leukocyte Stimulating and Antihistaminic Agents on Symptoms of Common Cold. A. F. Griffiths.—p. 490.

Missouri State Medical Assn. Journal, St. Louis

46:685-748 (Oct.) 1949

Symposium on Trauma. G. A. Aiken, J. B. Brown, A. P. Rowlette, J. Kulowski and F. A. Carmichael Jr.—p. 701.
Symposium on Trauma. W. A. Bloom, D. W. Robinson, R. D. Duncan, F. A. Jostes and E. A. Smelik.—p. 708.
Issue of Compulsory Health Insurance. P. R. Hawley.—p. 715.

46:749-820 (Nov.) 1949

Problem of Lung Cancer. F. M. Woods.—p. 765.
Clinical Experiences with Diagnosis of Asthma. C. H. Eyermann. —p. 767.
Diseases of Newborn: Early Diagnosis from Obstetric Viewpoint. J. M. Singleton and F. C. Atwell.—p. 770.
Rhinoplasty: Its Relation to Deviation of Nasal Septum. W. A. Marmor.—p. 773.
Dermatitis Due to BAL (2,3—dithiopropanol): Complications in Treatment of Gold Dermatitis. P. O. Hagemann and J. W. Bagby. —p. 775.
St. Louis Diabetes Detection Drive. C. M. MacBryde.—p. 776.
The Physician and the Law. R. A. Moore.—p. 779.

46:821-892 (Dec.) 1949

Hypoglycemia of the Newborn Infant. H. E. Wachter.—p. 837.
Transabdominal Vagotomy: Surgical Technic, Preoperative and Postoperative Care. M. A. Casberg.—p. 843.
Method of Avoiding Operative Stricture Following Hemorrhoidectomy. R. Hackmeyer.—p. 850.
Hypertension: Surgical Treatment by Transthoracic Thoracolumbar Sympathectomy. P. A. Knepper, L. G. Neudorff, R. M. Brooker and J. R. McDaniel.—p. 855.
Interpreting Medicine for the Layman. S. M. Spencer.—p. 862.

New England Journal of Medicine, Boston

241:799-848 (Nov. 24) 1949

*Erythroblastosis Fetalis: V. Value of Blood from Female Donors for Exchange Transfusion. F. H. Allen Jr., L. K. Diamond and J. B. Watrous Jr.—p. 799.
Flexor Tendon Grafts in Hand. J. E. Flynn.—p. 807.
Effects of Bis-Trimethylammonium Decane Diiodide and Dibromide on Neuromuscular Function and on Induced Convulsions in Man. D. Grob, D. A. Holaday and A. McG. Harvey.—p. 812.
Use of Bis-Trimethylammonium Decane Dibromide in Anesthesia. D. A. Holaday, A. McG. Harvey and D. Grob.—p. 816.
Mediastinal Emphysema. M. Aisner and J. E. Franco.—p. 818.
Adenocarcinoma of Ampulla of Vater.—p. 836.
Metastatic Adenocarcinoma of Appendix, with Appendiceal Abscess. —p. 839.

Erythroblastosis Fetalis: Blood from Female Donors for Exchange Transfusion.—In reviewing data on 208 cases of erythroblastosis fetalis treated by exchange transfusion, Allen and associates noted that although the mortality was over 15 per cent in the whole group there were no deaths in a group of 42 babies who happened to have received blood from female donors exclusively. They had also observed that female babies with erythroblastosis fetalis do significantly better than male babies, especially with regard to the incidence of kernicterus. Since the discovery that blood from female donors seemed to be superior for exchange transfusion in infants with erythroblastosis fetalis, the authors have deliberately chosen women as donors for 13 babies with this disorder, and none of the 13 died. The beneficial effect of blood from female donors has been shown to result only from the use of relatively large quantities (150 cc. or more). The potential value of a beneficial component of blood from female donors is probably not limited to babies with erythroblastosis fetalis.

New Orleans Medical and Surgical Journal

102:203-288 (Nov.) 1949

Fallacies of Socialism. R. F. Hurleigh.—p. 203.
Clinical Use of Heparin and Dicumarol: Methods and Precautions. E. S. Nichol.—p. 208.
Thyroiditis. W. H. Kisner, J. Reganis and D. Haughton.—p. 217.
Carcinoma of Prostate: Review of Modern Medical and Surgical Treatment. J. A. C. Celaton.—p. 222.
Retropubic Approach to Vesical Obstructions. R. Lich Jr.—p. 230.
Surgical Management of Urinary Tract Injuries. R. K. Womack and J. H. Campbell.—p. 236.
Difficult Labor in Relation to Forceps Delivery. A. B. Hunt and G. T. Foust.—p. 239.
Significance of Fetal Heart Rate in Pregnancy and Labor. L. M. Abraham and I. Dyer.—p. 245.
Important Complications of Cataract Surgery (Exclusive of Sympathetic Ophthalmia). W. B. Clark.—p. 248.
Blood Transfusion in Louisiana: Problem in Adequate Medical Care. J. W. Davenport Jr.—p. 259.

New York State Journal of Medicine, New York

49:2735-2862 (Dec. 1) 1949

Symposium: Methods of Tuberculosis Case-Finding in the Community. Mass Chest X-Ray Survey: Summary of Follow-Up Findings in 200,000 Patients Examined in Erie County, New York. M. H. Schuck and W. R. Ames.—p. 2775.
Niagara Falls Mass Chest X-Ray Survey: Community Organization. J. A. Campbell, W. Siegal and H. E. Wirth.—p. 2779.
*Niagara Falls Mass Chest X-Ray Survey: Procedures and Results. W. Siegal, H. E. Wirth and J. A. Campbell.—p. 2783.
Diarrhea of the Newborn: Approach to Control Through Minimum Standards of Nursery Care. R. E. Trussell.—p. 2789.
*Problem of Cerebral Palsy. M. L. Levin, I. J. Brightman and E. J. Burtt.—p. 2793.
Vaccination Against Tuberculosis. H. M. Kinghorn and M. Dworski. —p. 2800.
Trends Affecting Welfare of Radiology. R. Spillman.—p. 2805.
X-Ray Studies of Disarticulated Skull. L. E. Etter.—p. 2808.
Peptic Ulcer Problem. A. F. R. Andresen.—p. 2811.
Psychosomatic Aspects of Regional Ileitis. W. A. Stewart.—p. 2820.
Management of Ear Problems in Children. M. F. Jones.—p. 2825.
Pediatric Suggestions to Reduce Neonatal Mortality. M. Weichsel and J. H. Lapin.—p. 2829.
Relation of Postcholecystectomy Syndrome to Psychosomatic Medicine and to Latent Subclinical Forms of Clinical Disease. A. O. Wilensky. —p. 2833.

Niagara Falls Mass Chest Roentgenologic Survey.—Siegal and co-workers completed a chest roentgenologic survey of the total adult population of the city of Niagara Falls, N. Y., in eight weeks, during which 52,137 persons, 99 per cent of whom were 15 years of age or older, were examined. It is estimated that 75.4 per cent of the resident adults eligible for roentgen survey were examined. The highest percentage of adults examined was in the age group between 15 and 25 years and the lowest was in those aged over 45. The largest number of persons examined was in the age group between 25 and 44 years. More men than women were examined in all age groups. Four hundred and eighty-one (0.9 per cent) of all the adults examined showed evidence suggestive of definite or suspected tuberculosis, based on survey film interpretations. One hundred and fifty of these (0.29 per cent of the total number of persons examined by roentgen rays) were considered tentatively to have active tuberculosis. The rate of probably active tuberculosis was twice as high among male patients as among female patients. In both sexes and in all the age groups the rate of probably active tuberculosis was highest among men 45 years of age or older. This emphasizes the seriousness of the problem among older men and points to the need for increasing efforts to examine by roentgen survey the chests of all persons in this high prevalence group. Only 12 (8 per cent) of the probably active cases had been reported previously; the remaining 138, therefore, were new to the Health Department. One hundred and nineteen of the 150 probably active cases (79 per cent) were classified as minimal tuberculosis, 28 (19 per cent) were classified as moderately advanced and 3 (2 per cent) as far advanced. Nontuberculous intrathoracic conditions were diagnosed in 630 persons, a rate of 1.2 per cent. Industrial employees showed a higher rate of probably active tuberculosis for both sexes, and this was more pronounced in men than in women. Follow-up 14 by 17 inch roentgenograms were obtained during the survey for 332 of the 481 persons (69 per cent) whose survey films showed definite or suspected tuberculosis. The large films showed agreement in 294 of the 320 persons (92 per cent) whose survey films showed definite tuberculosis.

Cerebral Palsy.—A survey of cerebral palsy conducted by Levin, Brightman and Burtt in Schenectady County, New York, during the latter half of 1948 indicates that the incidence of this disease is 5.9 per 1,000 live births, and the prevalence is 152 per 100,000 population. The total number of patients with cerebral palsy in the state of New York would be estimated at 22,000, based on observations made by the authors in Schenectady County. Additional surveys must be conducted in one or two additional counties before the data can be considered as truly applicable to the state as a whole. The occurrence of cerebral palsy bears no apparent relation to social, economic and cultural factors. Twenty-seven per cent of patients 5 years of age or older had never attended school, and 34 per cent required special classes of institutional care. Sixty-two per cent of the

patients 20 years of age or older had never been employed, and 17 per cent were employed either irregularly or on a part time basis. The Schenectady County survey indicates that 9 per cent of the patients with cerebral palsy have such a slight degree of handicap or are so well-adjusted that they do not require any special service, 64.1 per cent need services on an ambulatory basis, 8.3 per cent require prolonged medical treatment at a hospital-school and 18.6 per cent should be placed in institutions for custodial care. In view of the limited number of qualified personnel and facilities available for the treatment of patients with cerebral palsy, studies should be made to determine the ultimate improvement which may be expected after optimal treatment and the best means to screen those with good prospects for rehabilitation from those who have already achieved maximal improvement.

Northwest Medicine, Seattle

48:817-888 (Dec.) 1949

The Great Deception, Nationalized Medicine. E. E. Irons.—p. 841.
Difficulties of the Rheumatic Fever Problem. P. Guy.—p. 845.
Repair of Flexor Tendons with Fascia Lata. H. von H. Thatcher. —p. 848.
Strangulated Indirect Inguinal Sliding Hernia of Urinary Bladder. L. J. Scheinman.—p. 851.
Splenic Abscess. R. W. Pollock.—p. 853.
Cerebrovascular Lesions: Report of 52 Autopsy Cases of Cerebral Artery Hemorrhage Thrombosis and Embolism. G. L. Maurice.—p. 856.
Sinusitis. P. M. Osmun.—p. 857.

Oklahoma State Medical Assn. Jour., Oklahoma City

42:507-560 (Dec.) 1949

Nephroptosis. A. R. Sugg.—p. 510.
Evaluations of Methods of Prostatectomy. B. A. Hayes.—p. 513.
Management of Diabetes Mellitus. B. F. Keltz.—p. 517.
Use of Saddle Block for Obstetrics in Small Institutions: Preliminary Report of Observations in 132 Cases. C. E. White, J. E. Horn and D. Mounger.—p. 521.
*Use of Sulfamylon-Streptomycin Mixtures in Prevention and Treatment of Local Infections. P. E. Craig.—p. 523.
Roentgen Ray Diagnosis of Pulmonary Metastases. P. E. Russo.—p. 526.

Sulfamylon®-Streptomycin Mixtures in Treatment of Local Infections.—Sulfamylon® has been produced by alteration of the structural formula of sulfanilamide. This synthetic homolog (4-amine-2-methyl benzene sulfonamide hydrochloride), unlike the parent drug, is nontoxic, acts in the presence of para-aminobenzoic acid, blood, tissue fluids and pus, and has, according to Craig, a wide range of bactericidal activity against gram-positive micro-organisms. It is a stable, weakly acid, water soluble, white, crystalline compound, which, when combined in a 5 per cent aqueous solution with 200 units of streptomycin per cubic centimeter, has an inhibitory and killing power for some thirty types of bacteria, including both gram-positive and gram-negative groups, as well as most of the aerobes and anaerobes. The mixture is more effective than any other antibacterial agent. It has been used in lacerations, burns or abrasions, potentially or frankly infected wounds, chronic suppurating wounds, draining abscess cavities, acute sinusitis, rhinosinusitis, conjunctivitis, otitis, cystitis, cervicitis, vaginitis and proctitis, in preparation for skin grafting and in generalized or localized peritonitis. More than 900 patients have been treated with the drug. It has been employed in the form of wet dressing, used for irrigation, injected subcutaneously and instilled into ears, eyes and nose. The combination of sulfamylon® and streptomycin approaches the properties of an ideal antiseptic which will destroy bacteria rapidly without traumatizing the tissue to which it is applied or exerting toxic effects on the host.

Philippine Medical Association Journal, Manila

25:375-416 (Aug.) 1949

Cerebral Angiography: Preliminary Report. R. Paterno, J. Jose, D. Fernandez and A. Bona.—p. 375.
Cleft Lip in Adults and Infants. J. E. Laico.—p. 385.
Preventive Pediatrics in Private Practice.—F. del Mundo.—p. 391.
Mycologic Technique in Medical Practice. F. C. Bocobo.—p. 395.
Myasthenia Gravis: Case Report Involving Muscles of Phonation and Deglutition. M. G. Tan.—p. 401.

Proc. of Staff Meet. of Mayo Clinic, Rochester, Minn.

24:581-604 (Nov. 23) 1949

Traumatic Premature Closure of Subcapital Femoral Epiphyseal Cartilage: Report of Case. R. K. Ghormley, P. B. Golden and M. E. Anderson.—p. 581.
Hamartoma of Hand—Report of Case. M. B. Coventry, L. B. Woolner and M. E. Anderson.—p. 587.
*Hematopoietic Activity of Parenterally Administered Beef Muscle Concentrate in Cases of Pernicious Anemia. E. H. Morgan, B. E. Hall and D. C. Campbell.—p. 594.
Hormonal Influences upon Rate of Growth of Hair in Gonadectomized Mice. A. B. Houssay and G. M. Higgins.—p. 597.

Parenterally Administered Beef Muscle in Pernicious Anemia.—A concentrate of beef muscle, prepared and furnished to Morgan and his associates by Wolf and his co-workers, was administered intramuscularly to 3 patients with pernicious anemia in relapse. Each patient received 20 mg. of the concentrate each day, this amount being derived from 125 Gm. of beef muscle and containing approximately 1.0 microgram of vitamin B_{12} activity as determined by microbiologic assay. This method elicited hematopoietic responses which appeared to be optimal in 2 patients and suboptimal in 1. The activity of parenterally administered beef muscle concentrate, therefore, appears to be similar to that of extracts of liver, and presumably is due to the presence of vitamin B_{12}.

Southern Medical Journal, Birmingham, Ala.

42:929-1020 (Nov.) 1949

Circular Prolapse of Female Urethra: Report of Two Cases. E. H. Kloman, W. K. Mansfield and A. K. Schoenbucher.—p. 929.
Fractures About the Base of First Metacarpal with Special Reference to Bennett's Fracture. H. B. Macey and R. A. Murray.—p. 931.
Cholecystocolic Fistula: Review and Case Report. J. F. Crenshaw. —p. 935.
Anticoagulant Therapy and Cardiovascular Disease: Panel Discussion. E. S. Nichol, O. P. J. Falk, G. R. Meneely and E. Hull.—p. 943.
Carotid Sinus Hypersensitivity as Sign of Intracranial Disease: Case of Cerebellar Angioblastoma. A. Calix and T. Findley.—p. 950.
Psychosomatic Factors in Dermatology. C. S. Wright.—p. 951.
Porphyria. J. S. Marietta.—p. 958.
Acute Idiopathic Porphyria: Report of Case. J. P. Michaels. —p. 965.
*Bromide Intoxication: Report of 36 Cases. J. D. Campbell.—p. 967.
*Niacinamide in Bromide Intoxication. R. S. Harris and P. S. Derian. —p. 973.
Treatment of Bancroftian Filariasis with "Hetrazan" in Puerto Cabello, Venezuela. A. L. Briceno Rossi and R. Hewitt.—p. 978.
Prolonged Interval Dosage of Aqueous Penicillin in Surgical Infections. J. L. Southworth and C. H. Dabbs.—p. 981.
Typhoid Fever Treated with Aureomycin and Chloramphenicol. M. Scarzella, C. Migazzo and M. Cappio.—p. 983.
Treatment of Gonorrhea with Chloramphenicol. C. H. Chen, R. B. Dienst and R. B. Greenblatt.—p. 986.
Studies on Chloramphenicol in Early Syphilis and Gonorrhea: Preliminary Report. H. M. Robinson and H. M. Robinson Jr.—p. 988.
Further Studies with Pituitary Adrenocorticotropic Hormone (ACTH). T. D. Spies, R. E. Stone, S. Dreizen and B. F. Morten.—p. 991.
Fatality Following "Tridione." A. N. Berry.—p. 995.

Bromide Intoxication.—Campbell reviews 36 cases of bromide poisoning. Symptoms of moderate bromide intoxication (blood bromide of 50 to 150 mg.) are slowing of cerebration, impaired memory and concentration, nervousness, anorexia, sleep disturbance (insomnia or hypersomnia), dusky purplish discoloration of the skin, maculopapular or acne-like rash, headache, dizziness, fatigue and irritability. Severe intoxication (blood bromide of 150 mg. or above) may cause thickness or slurring of speech, personality change, impaired sense of responsibility, rambling of thought, confusion, hallucinations, delusions, disorientation, lethargy, confabulation, combativeness, excitability and even delirium. Determination of the bromide content of the blood will facilitate the diagnosis. Unsteady gait, hyperactive or absent reflexes, tremors, sluggish pupils, poor coordination and nystagmus are the neurologic signs of bromide poisoning. Sodium chloride is a specific antidote. In mild cases 2 enteric-coated, 15 grain sodium chloride tablets may be given four times daily. In the moderate and severe cases the patient should be hospitalized. Here, sodium chloride may also be given intravenously. The author uses isotonic sodium chloride solution intravenously plus sodium chloride tablets orally, or 2.5 per cent sodium chloride, 1,000 cc. per day, intravenously. Most patients, even with severe intoxication, recover within 2 weeks. The mortality rate is less than 1 per cent. Prescrip-

tions containing bromides should always carry a "do not refill" reminder to the druggist. The sale of bromides has been encouraged since the sale of barbiturates has been restricted. The author feels that the sale of bromides should likewise be put under control.

Nicotinamide in Bromide Intoxication.—Harris and Derian call attention to the fact that chronic bromide intoxication presents a symptomatology similar to that of pellagra. They noted an increased urinary excretion of total coproporphyrins in dogs on a nicotinic acid-deficient diet and in dogs on basal diet plus bromides. Dogs on basal diet plus bromide, supplemented with massive doses of nicotinamide, failed to show increased urinary porphyrins or other signs of bromism. Six patients with bromism showed an increased coproporphyrin excretion. Two of these patients were treated with nicotinamide, 600-750 mg. per day, in conjunction with sodium chloride therapy. The remaining 4 patients were given nicotinamide only, in an attempt to clear neuropsychiatric symptoms while maintaining a relatively high serum level of bromide. In both groups clearance of symptoms was accomplished in about five days. Sodium chloride may be administered in conjunction with the nicotinic acid to hasten lowering of bromide level, or the symptoms may be alleviated with nicotinamide alone. The latter procedure is recommended in cases of cardiac decompensation when sodium chloride is contraindicated.

Surgery, St. Louis

26:727-888 (Nov.) 1949

*Human Heart Rate: Some Observations and Deductions Based upon Effect of Removing Portions of Sympathetic Nervous System in Man. R. H. Smithwick, E. M. Chapman, D. Kinsey and G. P. Whitelaw.—p. 727.
*Stab Wound of Heart Followed by Temporary Cessation of Heartbeat with Resuscitation by Cardiac Massage: Clinicopathologic Study of 1 Case of Thirty Days' Survival. A. C. Löken, W. Haymaker and D. L. Paulson.—p. 745.
Tension on Suture Line in Peripheral Nerve Surgery. E. E. Clifton.—p. 756.
Disabilities of Knee: Statistical Survey. R. E. Buirge.—p. 770.
Old United and Ununited Fractures of Patella. J. Paschall Jr., R. K. Ghormley and M. B. Dockerty.—p. 777.
Solitary Intrathoracic Neurofibroma: Report of 2 Unusual Cases. A. S. W. Touroff and S. O. Sapin.—p. 787.
Wound Healing and Heparin, Using Heparin Deposits. R. M. Bendix and H. Necheles.—p. 799.
Variations of Thoracic Duct. P. A. Van Pernis.—p. 806.
New Technique and Guide for Angiostomy. W. A. Dale.—p. 810.
Production of Lesions of Gastroduodenal Mucosa by Frequent Sham Feeding. D. C. Palmer, H. D. Janowitz and M. I. Grossman.—p. 816.
Respirator for Use in Intrathoracic Surgery in Dog. W. A. Gunkler and E. B. Mahoney.—p. 821.
Cotton as Suture Material in Urologic Surgery. D. R. Smith and R. G. Weaver.—p. 827.
Jejunal Intussusception: Unusual Complication of Use of Miller-Abbott Tube. D. D. Dunn and E. W. Shearborn.—p. 833.
Original Drainage Cup Apparatus for Ileostomies and Fistulas. M. J. Bellinger.—p. 837.
Starch Sponge—Hemostatic Agent. S. S. Rosenfeld.—p. 842.

Effect of Removing Portions of the Sympathetic Nervous System on Human Heart Rate.—Smithwick and his co-workers deal with patients who had different portions of the thoracic sympathetic chain removed for such conditions as disabling emotional or exertional tachycardia, angina pectoris, coronary artery heart disease, hypertension, vasomotor disorders of the upper extremities and hyperhidrosis. The response of the pulse rate to exercise was studied before and then at intervals after removal of the thoracic sympathetic ganglions. A slight modification of the "two step" exercise test was used. The levels of resection were verified by roentgen identification of clips left at the operative site, by the presence or absence of Horner's sign, by skin resistance studies and by surface temperature determinations. The evidence presented suggests that the cardioaccelerator fibers in man arise from the second to the fifth thoracic segments of the cord inclusive and bilaterally. The outflow from the right side appears to be slightly more important than from the left. The effect of unilateral cardiac denervation on the heart rate is slight by comparison with the effect of bilateral denervation. After complete sympathetic motor denervation, the resting pulse rates are slower in all groups, particularly in those having more rapid rates originally. The final rates are faster in the originally faster basal rate groups, suggesting that tachycardia (resting) is due to a combination of increased sympathetic and decreased vagus tone. In response to exercise, the percentage increase in maximal heart rate is greater before than after operation, particularly in the slower rate groups. After operation the accelerator response is the same in both groups. This suggests that stimulation of cardioaccelerator fibers is superimposed on inhibition of vagus tone in causing increased heart rate in response to exercise in the normally innervated state. Cardiac acceleration following sympathectomy appears to be the result of inhibition of vagus tone. Resection of the cardioaccelerator fibers in man has been helpful in the management of hypertensive patients having unusual degrees of tachycardia. It has also been helpful in a small group of patients having exertional or emotional tachycardia. Cardiac denervation may be an effective procedure in certain cases of paroxysmal auricular tachycardia.

Resuscitation After Cessation of Heart Beat.—Löken and his associates report the case of a man, aged 29, who was stabbed in the heart. Except for a slight elevation in temperature his condition remained satisfactory up to the sixth day, when roentgenograms taken from the lateral view disclosed a knife blade in the region of the right ventricular wall, which under fluoroscopy was seen to pulsate in unison with the heart. The heart shadow was enlarged, and there was evidence of a small amount of fluid in the pericardial and left pleural cavities. During the operation about 250 cc. of blood was aspirated from the pericardium. During this aspiration the heart suddenly stopped. The pericardial cavity was opened, the heart massaged and epinephrine injected, whereupon the heart began to beat. The cardiac arrest lasted three to five minutes. The patient survived for thirty days thereafter. He remained unconscious during the entire time. Postmortem examination disclosed in the brain mainly disappearance and degeneration of ganglion cells and replacement by myriad microglia and a smaller number of astrocytes. The cerebral cortex was the site of predilection, with the calcarine cortex bearing the brunt of the attack, an observation which bears reemphasis in view of the potential visual disturbance after nonfatal anoxia. Other severely affected structures were Sommer's sector of the hippocampus, thalamus, striatum, cerebellum and medial geniculate body. The white matter of the cerebrum was spared.

Virginia Medical Monthly, Richmond

76:611-672 (Dec.) 1949

Early Recognition of Psychoses. P. H. Drewry Jr.—p. 613.
*Malignant Lymphoma: Clinico-Pathologic-Radiotherapeutic Classification. P. F. Sahyoun, S. J. Eisenberg and F. B. Mandeville.—p. 620.
Acute Non-Specific Pericarditis: Report of 5 Cases. R. H. Sease and J. R. Beckwith.—p. 629.
Need for Continued Treatment and Control of Venereal Diseases. J. M. Suter.—p. 638.
Aluminum Foil as Dressing for Burns. W. A. Johns—p. 640.

Malignant Lymphoma.—Sahyoun and co-workers report 54 patients with malignant lymphoma. Definite criteria based on anatomic and other evidence were used in the differential diagnosis of these cases. A modified "Gall and Mallory" clinicopathologic-radiotherapeutic classification is proposed according to which the 54 cases were subclassified in 3 cases of stem cell sarcoma, 6 of clasmatocytoma, 8 of reticulum cell sarcoma, 10 of lymphosarcoma with blood invasion (leukosarcoma) or without blood invasion, 24 of Hodgkin's disease, 1 of Hodgkin's sarcoma and 2 of giant follicular lymphoma. The object of this classification is to point out that the so-called stem cell sarcoma resembles the undifferentiated mesenchyme and that any tumor included under the mesenchymal heading, when it becomes anaplastic, will develop into a cell type which approaches morphologically the primitive mesenchyme, regardless of whether its origin be lipoid, fibroblastic, myeloid or lymphoid. This sliding scale with the primitive mesenchyme at one end and the fully differentiated tissues at the other was used in the prognostication of all the tumors of the mesenchymal group. It was observed that the nearer the structure of the tumor approaches the indifferent mesenchyme, the more rapid is its course and the more dismal its prognosis.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

33:657-720 (Nov.) 1949. **Partial Index**

Von Hippel-Lindau Disease: Clinical and Pathological Report of Case. I. C. Michaelson and J. Hill.—p. 657.
Antihistamines in Ophthalmology. L. Méneth.—p. 665.
Effect of Hyaluronidase Injection on Vitreous Humour of Rabbit. A. Pirie.—p. 678.
Therapeutic Step in Acute Glaucoma. G. de L. Fenwick.—p. 688.
Early Post-Operative Detachment of Choroid. F. Csillag.—p. 694.
Incomplete Form of Mandibulo-Facial Dysostosis (Franceschetti's Syndrome). G. P. Halberg and J. M. Paunessa.—p. 709.
Ocular Allergy in Handlers of Streptomycin. J. Charamis.—p. 714.
Contact Shell Applicator for Use as Corneal Bath. M. Klein.—p. 716.

British Medical Journal, London

2:1065-1128 (Nov. 12) 1949

Tuberculosis in Europe During and After the Second World War. M. Daniels.—p. 1065.
*Risk of Neurological Complications in Pernicious Anaemia Treated with Folic Acid. M. C. G. Israëls and J. F. Wilkinson.—p. 1072.
Aureomycin: New Treatment for Syphilis? R. R. Willcox.—p. 1076.
Common Difficulties in Infant Feeding. R. S. Illingworth.—p. 1077.
Antihistamines in Treatment of Nausea and Vomiting of Pregnancy: Report on Clinical Investigation. T. Dougray.—p. 1081.
Anaemia of Pregnancy in Glasgow and District. J. M. Scott and A. D. T. Govan.—p. 1083.
Acute Mastoiditis in Children Treated with Penicillin and Sulphadiazine. A. J. Moffett and G. A. Dalton.—p. 1087.
Electrocardiographic Investigation of 264 Cases of Hypertension. P. Bechgaard.—p. 1089.
Sensitization to Denture Material as Cause of Angular Stomatitis. H. R. Vickers.—p. 1091.
Analgesia Inhaler for Trichlorethylene. H. G. Epstein and R. R. Macintosh.—p. 1092.

Neurologic Complications in Pernicious Anemia Treated with Pteroylglutamic Acid.—Israëls and Wilkinson review observations on a group of 20 pernicious anemia patients, who either had not been treated before or had relapsed, and whom they treated with pterolyglutamic acid (synthetic folic acid) alone. Three had initial signs of subacute combined degeneration of the spinal cord. In a three year period 13 patients without initial neurologic involvement showed signs and symptoms of subacute combined degeneration of the spinal cord which were relieved by change of medication to liver extracts or desiccated stomach preparations. Three patients with initial neurologic symptoms and signs became worse neurologically after pteroylglutamic acid therapy. Neither increasing anemia nor the hemoglobin levels could be used to predict the likelihood of neurologic complications. Four patients were well after two or three years of oral administration of 5 to 20 mg. of pteroylglutamic acid daily. The use of pteroylglutamic acid for the treatment of pernicious anemia should be strictly limited to cases of special difficulty. It should never be given to patients with subacute combined degeneration of the spinal cord.

2:1129-1190 (Nov. 19) 1949

Further Studies Concerning Participation of Adrenal Cortex in Pathogenesis of Arthritis. H. Selye.—p. 1129.
Tuberculosis in Europe During and After the Second World War. M. Daniels.—p. 1135.
Variations in Bacteriology of Throat and Rectum of Infants in Two Maternity Units. A. M. McFarlan, P. B. Crone and G. H. Tee.—p. 1140.
Incidence of Infections in Infants in Two Maternity Units. J. D. Roscoe.—p. 1144.
Relation of Staphylococcus Pyogenes to Infantile Diarrhoea and Vomiting. G. Martyn.—p. 1146.
*Mortality and Survival Rates in Males with Silicosis or Silico-Tuberculosis. H. M. Turner and W. J. Martin.—p. 1148.
Paraffin Pneumonia. M. Gelfand.—p. 1151.
Successful Treatment of 2 Cases of Gangrenous Intussusception in Childhood. D. J. Conway and R. L. G. Dawson.—p. 1153.

Survival Rates in Silicosis or Silicotuberculosis.—According to Turner and Martin, at Sheffield, which is traditionally the home of the grinder, as well as of a number of other trades that carry the occupational hazard of silicosis, records have been accumulated of 857 men in whom some degree of silicosis or of silicotuberculosis was diagnosed. Of these, 43 did not reach the age of 40 and were excluded. The series consists of 814 men over the age of 40. Survival rates for men with silicotuberculosis compare unfavorably at all ages over 40 with the rates for men with pure silicosis or with the control rates for men in the general population. There is a reduction of 13 years in the expectation of life at the age of 40 for the group with silicotuberculosis. Up to the age of 51 the survival rates for men with pure silicosis are similar to those of men in the general population. After the age of 51 there is an adverse deviation in survival rates for the group with pure silicosis. This results in a decrease of eight years in life expectancy from age 40, as compared with the expectation of life of men in the general community. It is suggested that this is due to the effects of silicosis on cardiorespiratory function and on the capacity to resist respiratory infections.

Edinburgh Medical Journal

56:381-424 (Sept.) 1949

Medical Aspects of Splenectomy. H. N. Robson.—p. 381.
The Mentally Subnormal and Social Medicine. R. Bailey.—p. 396.
Sturge-Weber Syndrome: Report of Case Showing Improvement After Radiotherapy. C. Strang.—p. 409.
Cardiovascular Complications of Oesophageal Lesions. A. W. Branwood.—p. 415.
Thrombo-Angiitis Obliterans—Clinical Review. R. B. Lynn and C. C. Burt.—p. 422.

Lancet, London

2:925-972 (Nov. 19) 1949

Pathogenesis of Atherosclerosis. J. B. Duguid.—p. 925.
*Anterior Tibial Syndrome. A. B. Carter, R. L. Richards and R. B. Zachary.—p. 928.
*Thromboangiitis Obliterans Treated by Hypoglycaemia. H. Mazanek.—p. 933.
Departure of Substances from Spinal Theca. F. Howarth and E. R. A. Cooper.—p. 937.
Infant Salmonella Carriers. I. M. Mackerras and V. M. Pask.—p. 940.
Effect of Head-Down Position on Circulation in Hypotensive States. A. J. P. Graham and D. M. Douglas.—p. 941.
Treatment of Lung Abscess by Inhalation of Micropulvarised Penicillin. D. T. O'Driscoll.—p. 945.

Anterior Tibial Syndrome.—Carter and his associates call attention to a peculiar syndrome involving the tibial muscles of the leg. They have seen 9 cases in three widely separated areas of Britain. The syndrome occurs chiefly in young men and consists of ischemic necrosis of the muscles of the anterior tibial portion of the leg, with a lesion of the anterior tibial nerve. In most of the published cases the onset of the syndrome could be directly related to physical exertion involving strenuous use of the leg muscles. In 2 cases in the present series the syndrome developed after a blood transfusion into the affected limb. The salient clinical features are (1) pain in the front of the leg followed by (2) signs of inflammation over the pretibial muscles and (3) inability to dorsiflex the foot and toes. Important negative observations are normal action of the peroneal muscles and a minimal degree of foot drop due to contracture of the ischemic muscles. The authors suggest the following sequence of events: Unaccustomed exertion causes muscle trauma, which is followed by increased pressure within the anterior tibial region, impaired blood supply to the affected muscles and ischemic necrosis. The anterior tibial nerve is involved either by compression, in which case it recovers rapidly, or by ischemia, in which case the loss of function is permanent. The condition can probably be prevented by graduated physical training. If the syndrome is recognized early, rest alone may prevent irreversible damage to the muscles; if paralysis has developed, it is advisable to resort to surgical decompression of the anterior tibial area as an emergency procedure.

Thromboangiitis Obliterans Treated by Inducing Hypoglycemia.—Mazanek observed a significant increase in the peripheral blood flow during the hypoglycemic period produced by injection of large doses of insulin in the treatment of mental disorders. Twenty years ago French workers treated effectively thromboangiitis obliterans with injections of 10 to 20 units of insulin daily for long periods; Mazanek administered insulin in advanced cases of thromboangiitis obliterans which did not respond to other treatment. Insulin was given twice daily, before breakfast and three hours after the midday meal. Each

course continued for about twenty days and was followed by an interval of ten days. The number of courses depended on the patient's general condition and the peripheral blood flow. If further treatment was needed after three or four courses, the patient was given a rest of about six weeks before the next course. The initial dose of insulin was 40 to 60 units in the morning and 60 to 80 units in the afternoon. Thereafter the amount was adjusted according to the blood sugar levels and clinical observations so that it would produce hypoglycemia lasting three hours. Each of 20 consecutive patients with thromboangiitis obliterans responded favorably to repeated transient hypoglycemia. Improvement was manifested by relief of rest pain, warmer and more normally colored skin, relief from claudication pain (complete in 4 cases) and lengthening of walking distance. In 6 cases, in which the arms were involved, the skin became warmer and the fingers and hands were restored to almost normal color; edema and numbness were lessened. Fine movements of the fingers, which were clumsy before treatment, returned almost to normal; the grip became stronger. Upper limbs improved more quickly than the lower limbs. Ulcers of the toes in 6 instances healed during the first course of treatment.

South African Medical Journal, Cape Town

23:887-902 (Oct. 29) 1949

Serologic Test for Syphilis: Assessment of Its Diagnostic Value in General Practice. S. Sax.—p. 887.
Epilepsy: II. Clinical and Therapeutic Considerations. J. F. P. Erasmus.—p. 892.
*Diabetes Mellitus: Pitfalls in Its Diagnosis. M. P. Brasch.—p. 899.

Diabetes Mellitus.—Brasch says that there are still many pitfalls in the diagnosis of diabetes. The first case cited demonstrates that it is inadvisable to rely on one determination of the blood sugar, unless the level is 130 mg. or over per hundred cubic centimeters. This case also shows that a diabetic patient can experience hypoglycemic attacks. A second case shows that diabetes must be considered wherever there is a family history of this disease. In such cases urine tests alone cannot be relied on and dextrose tolerance tests must be made. There may be a high renal threshold, and one may receive specimens obtained at a time when the urine was free of sugar. Commenting on a third case the author stresses that in asymptomatic cases of glycosuria, especially in persons without a family history of diabetes, a fasting blood sugar test should be done. Unless this test shows decided elevation of the blood sugar level, the concentration should be determined two and one half hours after ingestion by the patient of a heavy carbohydrate meal or 100 Gm. dextrose. If the result is below 120 mg. per hundred cubic centimeters, the patient is not diabetic. If the result is well above 120 mg. (160 or even 180 mg. per hundred cubic centimeters) the patient is diabetic. If the result is just above 120 mg. a full dextrose tolerance test should be done in order to arrive at a correct diagnosis. A fourth case indicates that even a true diabetic curve can give false information. A diabetic dextrose tolerance curve must be viewed with suspicion if it was determined while the patient was on a restricted diet; the test should be repeated after the patient has been receiving sufficient carbohydrates for at least one week.

Tubercle, London

30:241-264 (Nov.) 1949

Host Parasite Relationship in Tuberculous Infection. E. M. Brieger.—p. 242.
Clinical Survey of Bronchiectasis. B. Mann.—p. 254.
*Pleurisy with Effusion in Early Syphilis. C. D. Calnan.—p. 260.

Pleurisy with Effusion in Early Syphilis.—Calnan reports a man, aged 42, in whom early secondary syphilis, jaundice and pleurisy with effusion were associated. All responded to antisyphilitic therapy. The presence of pleurisy in early syphilis is extremely unusual, no previous similar description being found in the literature. Treponema pallidum were not found in the pleural fluid, but evidence was in favor of the illness having only one causative factor.

Acta Obstet. et Gynec. Scandinavica, Stockholm

29:101-222 (No. 2) 1949. **Partial Index**

Induced Labor: Experience Through a Five Year Period. S. Stamer.—p. 101.
*Cartilaginous Multiple Exostoses in Connection with Labor. S. Timonen.—p. 138.
Roentgen Examination in Cases of Placenta Previa. J. A. Abolins.—p. 150.
Pathologic and Clinical Aspects of Theca Cell Tumors. R. J. Kleitsman.—p. 175.

Multiple Cartilaginous Exostoses Causing Complications in Labor.—According to Timonen cartilaginous multiple exostoses belong to the same group of disorders that in America are grouped under the common term "chondrodysplasia," which describes the endogenous nature of these diseases. They are due to a defect in the system of ossification. Deformities of the epiphyseal lines develop during the period of growth. As the epiphyseal cartilage grows, portions of undifferentiated connective tissue are displaced to the surface of the bone where they do not in the normal way give rise to osteoblasts but to chrondroblasts. Thus no dense corticalis develops but a cartilaginous nodule which gradually ossifies and changes into spongiosa. Owing to the cortical defect, these places appear in a vertical roentgenogram as clear areas whereas in the side view they stand out as nodules. A cartilaginous layer remains on the surface of each exostosis. Often nodules, spikes and even spurlike formations develop from the epiphyseal lines of all major bones. The progress of the disease is restricted to the period of growth. The multiple cartilaginous exostoses are hereditary. The author reports a 24 year old primipara who had nodules on the fingers and the upper arms, first discovered at the age of 9. They grew slowly until the progress of the disease came to a standstill after her eighteenth year. The patient was admitted to the hospital, because it was assumed that delivery was considerably overdue. The labor was at first normal but later stopped in spite of effective contractions. The os uteri was fully dilated. On the right, near the juncture of the iliac and pubic bones, a horn-line formation 3 to 4 cm. in height pressed against the head of the fetus. Since this appeared to be an obstacle to delivery, a cesarean section was performed. The head showed a deep indentation where it had been pressed upon by the large exostosis. The infant survived only to the fourth day. Necropsy revealed injuries and hemorrhages in the brain, bronchopneumonia and pleural empyema. The exostosis in the mother was the cause of the fatal injury to the child. The literature contains few warnings that cartilaginous multiple exostoses may result in an irregularly narrow and oblique pelvis likely to give rise to complications during labor.

Acta Radiologica, Stockholm

33:81-250 (Sept. 30) 1949. **Partial Index**

*Relationship of Hand-Schüller-Christian's Disease, Letterer-Siwe's Disease and Eosinophilic Granulomas of Bone: With Report of 5 Cases. P. B. Hansen.—p. 89.
Roentgenographic Studies of Hydronephrosis Due to Obstruction at Ureteropelvic Junction. E. Lindblom.—p. 113.
Electrokymographic Recording of Auricular Movements. T. Andersson.—p. 121.
Focal Exclusions in Renal Tuberculosis. R. Gay.—p. 129.
Testosterone Propionate in Treatment of Advanced Carcinoma of Breast. P. E. Andersen.—p. 159.
Frontal Sinuses in Bronchiectasis: Study on Morphological Basis of Lung Disease. J. Torgersen.—p. 185.
Peptic Ulcer of Oesophagus. G. Thomsen.—p. 193.
*Roentgen Treatment of Intracranial Gliomas. A. Engeset.—p. 210.
Intraoral Mucous and Salivary Gland Mixed Tumors. A. Hoboek.—p. 229.

Relationship of Hand-Schüller-Christian's Disease, Letterer-Siwe's Disease and Eosinophilic Granulomas of Bone.—Hansen reports 5 patients whom he observed. From the combination of symptoms in these 5 patients and from reports in the literature he concludes that Hand-Schüller-Christian's disease, Letterer-Siwe's disease and the eosinophilic granulomas should be regarded as different phases of the same disease, and that it is a disorder of the reticuloendothelial system. It is not known what brings about this abnormal development of the reticuloendothelial cells, or why these peculiar granulomatous and xanthomatous formations ocur in this disease group. It is not even possible to decide whether they are neoplastic or inflam-

matory processes. Thannhauser expresses the opinion that the xanthomatous formations are due to an enzymatic disturbance, particularly in young proliferating reticular cells, and have a certain relationship to Gaucher's and Niemann-Pick's diseases. It is possible that these diseases, and perhaps Tay-Sachs's disease, should also be grouped under the reticuloses. The author considers it of minor importance whether a collective term is coined for this group of diseases. Clinically it seems practical to use the established designations. It is important to realize that the three clinical pictures represent three phases of the same disease, which often has a serious prognosis, and that the benign phase may develop into a malignant disorder, especially in young persons.

Roentgen Treatment of Intracranial Gliomas.—Engeset says that following Nordentoft's favorable experiences in 1916, roentgen ray treatment was advocated for intracranial gliomas. In 1928 Bailey and co-workers concluded that roentgen therapy of intracranial gliomas should be undertaken only after an attempt has been made to extirpate the tumor provided it was localized or after a decompression has been done in case the tumor could not be localized. Engeset analyzes cases of glioma observed at the University Hospital of Oslo between 1932 and 1946. All these patients were treated with roentgen rays, but the majority were also operated on. In most patients the tumor was removed in part, in some cases only a biopsy specimen was taken. In other cases a palliative operation was performed. The 39 cases in which the histologic diagnosis was verified included 18 of glioblastoma multiforme, 12 of astrocytoma, 4 of medulloblastoma, 2 of oligodendroglioma, 2 of astroblastoma and 1 of ependymoma. A second group of 7 patients had tumors in the third ventricle and the pineal region. Their condition was diagnosed pneumographically and treated palliatively by ventriculocisternostomy. A third group comprised cases of cerebellar medulloblastoma. They were diagnosed clinically and treated with roentgen therapy only by the method of Sosman. All the patients with glioblastoma multiforme are dead. The average period of survival was nine months. Eight of the 12 patients with astrocytoma are surviving and feel better, although they have some sequels, such as epilepsy, aphasia, cramps and dementia. Of the 2 patients with astroblastoma, a boy aged 6 years is living and in excellent condition seventy months after treatment; a woman aged 30 died three years after treatment. Of the 2 women with oligodendroglioma 1 died four years after treatment, but for six months during this period she had been able to work. The other patient became symptom-free for almost two years but died from a recurrence. Medulloblastomas have been treated in recent years with roentgen rays only, according to the method of Sosman. The results have been encouraging. One patient with cerebellar medulloblastoma survives one hundred and thirty-seven months after treatment. One patient has probable radiation injury of the brain after a total dose of 37,250 r against the left hemisphere. In order to avoid dangerous reactions, small initial doses of roentgen radiation should be given for two weeks. Daily doses as small as 25 r are recommended for the first days, especially when decompressive craniotomy has not been performed.

Klinische Wochenschrift, Heidelberg

27:617-648 (Oct. 1) 1949. **Partial Index**

Neurosecretory Connection of Hypothalamus and Hypophysis. W. Bargmann.—p. 617.
Clinical Aspects of Epidemic of Poliomyelitis in Hamburg in 1947. R. Aschenbrenner and K. Hansen.—p. 622.
*Effect of Fever Shock Therapy in Acute Rheumatic and Allergic Diseases: Its Significance for Acute Rheumatism. F.-E. Schmengler. —p. 627.
Gastric Cathepsin in Adults and Its Significance in Digestion of Proteins. R. Merton, H. Ratzer and U. Kleffner.—p. 635.

Effect of Fever Shock Therapy in Acute Rheumatic and Allergic Diseases.—Schmengler points out that a number of reports in the German literature of the last two years discussed fever shock therapy in certain acute infectious diseases. He resorted to the injection of pyrifer, a vaccine of the colon bacillus in (1) acute rheumatic polyarthritis, (2) acute rheumatic fever without the involvement of joints, (3) polysymptomatic acute rheumatic conditions, particularly in those with skin lesions and (4) acute allergic disorders with known antigens. All these forms reacted to the shock therapy with prompt defervescence and rapid disappearance of the local symptoms. The author feels that the shock therapy exerts its effect by a sudden overstimulation of the sympathicotonic status, and the reaction to the shock is a parasympathetic predominance. The mechanisms involved become better understandable when the acute rheumatic disturbances are interpreted as cyclic infectious diseases. The focal point of the pathologic mechanism involved is an anaphylactic process which takes place in the cells and which sets into motion the reaction in the sympathetic system. Only this sympathetic reaction can be regulated by the fever shock therapy, the cellular process is not. The factors involved in the rheumatic complex are divided into three essentially different, but functionally connected and intermerging, phases. The first phase is that of sensitization; the second is that of equilibrium with few symptoms. During the third phase regulation fails and the acute outbreak follows. In the application of these concepts to the therapeutic plan, the fever shock therapy is best suited for the acute process in the third phase, whereas antibacterial and bacteriostatic remedies, removal of foci of infection and preventive measures should be employed during phases one and two.

27:649-680 (Oct. 15) 1949. **Partial Index**

*Mononucleosis in Virus Diseases. W. Siede.—p. 649.
Contribution to Action Mechanism of Ultrasonic Waves in Human Tissues. K. Stuhlfauth and K.-H. Wuttge.—p. 662.
Formation of Gamma Globulin in Therapeutic Malaria. N. Zöllner. —p. 670.
*Mass Poisoning Due to Datura Stramonium in Bread Flour. P. Pulewka.—p. 672.

Mononucleosis in Virus Diseases.—Siede observed, while making hematologic studies in the course of an epidemic similar to jaundice which is now generally referred to as virus hepatitis, a characteristic behavior of the mononuclear leukocytes. From the fact that practically identical hematologic changes are observed in other virus diseases, such as Pfeiffer's glandular fever (often referred to as mononucleosis), virus pneumonia and German measles, Siede deduces that this reaction of the mononuclear cells might be characteristic for certain virus diseases. He describes the changes in the mononuclear leukocytes and assumes that these changes are a manifestation of an irritation of the reticular tissues of lymphatic organs. He regards them as a specific defense reaction of the reticular cell system and as histologically analogous to the specific humoral defense bodies, the specificity of the defense reaction being morphologically identified by typical cellular manifestations.

Poisoning Due to Datura Stramonium in Bread Flour.—Pulewka reports that the inhabitants of a village in Turkey became ill with pain in the stomach, nausea, vertigo, dryness and bitter taste in the mouth, and later had visual disturbances and unsteady walk. Some had hallucinations and delirium, manic psychosis, polyneuritis or herpes zoster. Examination of the flour from which the bread had been baked indicated the presence of atropine or similar substances. Microscopic examination of the flour revealed parts of the seed of Datura stramonium (thorn apple, or Jamestown weed). The alkaloids contained in 100 Gm. of flour were equivalent in effect to 9.25 mg. of atropine sulfate, 7.7 mg. of atropine base or 3.85 mg. of hyoscyamine base.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

93:3457-3532 (Oct. 8) 1949. **Partial Index**

Role of Liver Biopsy in Diagnosis of Enlarged Lymph Nodes in Pulmonary Hilus and Mediastinum. C. van Beek and A. J. C. Haex. —p. 3465.
Therapy of Acute Hematogenous Osteomyelitis. J. A. M. Drijvers. —p. 3474.
*Para-Aminosalicylic Acid in Therapy of Bronchial Tuberculosis. P. C. Gugelot.—p. 3480.

Para-Aminosalicylic Acid in Treatment of Bronchial Tuberculosis.—Gugelot reports 6 patients who reacted favorably to treatment with para-aminosalicylic acid. None of them had a cavernous pulmonary lesion, but all had tubercle bacilli in the sputum. The clinical signs were those of tuberculous bronchitis without stenosis. The bronchial lesions of these

patients cannot be regarded as part of a tuberculous pulmonary lesion, since they dominate the picture to such an extent that they must be regarded as an independent entity. Bronchoscopy revealed ulcerating and necrotic lesions, and the bronchogram sometimes disclosed "stops" and bronchiectasis. Para-aminosalicylic acid therapy was administered by inhalation and in the form of tablets. The patients were given 9 to 12 Gm. of the drug a day. Treatment was continued for months, with a pause of five days after each ten day period. Most patients tolerated the drug well. Some had gastric disturbances, but these could be controlled. Inhalation was always well tolerated. Most of the patients were also given streptomycin. Although streptomycin is unsurpassed in the treatment of ulcerative laryngeal tuberculosis, it is inferior to para-aminosalicylic acid in ulcerating bronchial tuberculosis.

Nordisk Medicin, Stockholm

42:1687-1718 (Oct. 28) 1949. **Partial Index**

Significance of Psychogenic Factor in Allergic Diseases. Review. E. B. Salen.—p. 1687.
*Circulatory Changes During Antabus-Alcohol Reaction. Preliminary Report. K. Raby and E. Lauritzen.—p. 1693.
*Possible Diabetogenic Effect of Tetraethyl Thiuram Disulfide (Antabus). Preliminary Report. E. Lauritzen and K. Raby.—p. 1694.
*Granulosa Cell Tumors. U. Rolfsen.—p. 1696.

Circulatory Changes during Antabus-Alcohol Reaction: Preliminary Report.—In series of investigations of patients during the antabus (tetraethylthiuramdisulfide)-alcohol reaction Raby and Lauritzen found tachycardia and changes in blood pressure to be typical. The fall in blood pressure may be of brief duration or may last several hours. Electrocardiographic changes during the course of the reaction were demonstrable after a few minutes and lasted about thirty minutes to a couple of hours. The changes are characteristic: (1) flattening of the T waves, usually most marked in leads 1 and 2, (2) simultaneous shifting of the S-T segments downward, also most marked in leads 1 and 2, especially lead 2, and (3) tendency to transitory disappearance of a left preponderance previously present. The changes appeared in one or all forms in about 90 per cent of the patients examined were transitory and apparently without harmful effect. Like the changes in blood pressure, which also appear not to be dangerous, they seem to be a normal part of the antabus-alcohol reaction, but the occurrence of these changes during the reaction calls attention to the importance of medical control.

Possible Diabetogenic Effect of Tetraethylthiuram-disulfide (Antabus).—Laboratory examinations and clinical control in Martensen-Larsen's 800 cases of alcoholism treated with antabus indicated that antabus in the usual therapeutic dose is without diabetogenic effect on nondiabetics. Preliminary investigations on 15 well regulated hospitalized diabetic patients (5 mild cases, 6 moderately grave cases and 4 grave cases) given the usual therapeutic dose of antabus, with a total dose of 7 to 90 Gm. during the test period of two to forty weeks, revealed no influence on the course of diabetes. Lauritzen and Raby warn that changes in diet metabolism which follow when an alcoholic patient suddenly ceases to take alcohol and goes on an ordinary diet involve the possibility of a flare-up of a latent disorder not attributable to the antabus.

Granulosa Cell Tumors.—Rolfsen describes the 5 cases of granulosa cell tumors seen in the pathologic laboratory of Ullevål Hospital during the last ten years, when 779 ovarian tumors were examined, of which 56 were solid. The average age of patients with granulosa cell tumors was 66; 1 patient was 75 and one 80. Meig's syndrome was present in 1 instance. Diagnosis was not made preoperatively. Radical treatment was given in only 1 case. There was no recurrence during observation for one-half to one year. Radical treatment is advised after the menopause, with removal of the uterus and both adnexa, and roentgen after-treatment; conservative treatment with removal of the tumor is recommended before the menopause. Histologic examination of the tumors showed that a large proportion of the follicles consisted of thin-walled vessels which, like the granulosa cells, seemed to grow out of the theca cell layers. Theca cells appear to be a constant and essential component of granulosa cell tumors. Novak's theory that thecomas and luteomas represent different stages in the development of granulosa cell tumors seems to be supported.

Praxis, Bern

38:953-974 (Oct. 27) 1949

Some Problems in Internal Medicine. W. Hadorn, G. Riva and P. Stucki.—p. 953.
*Hyperthyroidism of Hypoestrogenic Origin and Its Hormonal Therapy. J. Lederer.—p. 957.
Possibility of Room Disinfection by Aerosol Method. E. Wiesmann.—p. 961.

Hyperthyroidism of Hypoestrogenic Origin.—Lederer reports 1 woman aged 44 with toxic diffuse goiter developing after a total hysterectomy, 1 woman aged 38 with toxic diffuse goiter following a total hysterectomy and a bilateral ovariectomy and 2 women aged 51 and 53 with toxic diffuse goiter developing during a normal menopause. The first patient was given 5 mg. of estradiol benzoate (15 mg.) three times during the first week, 5 mg. (10 mg.) of the drug two times during the second and third weeks and 5 mg. weekly the ten following weeks, by the intramuscular route. The second patient was given 25 mg. of estradiol dipropionate the first week, 20 mg. of the drug the second week, 15 mg. the third week, 10 mg. the fourth and fifth weeks and 5 mg. weekly the following ten weeks, by intramuscular route. One of the two older patients, in whom menstruation had ceased normally for five months and one year, respectively, received 10 mg. of estradiol benzoate weekly the first two weeks and then 5 mg. weekly the following eight weeks, and the second patient was given 10 mg. weekly the first three weeks and 5 mg. weekly the following eleven weeks. Five milligrams per week is considered a physiologic dose. The general condition of all 4 patients improved rapidly. There was less fatigue, and the patients were calm and euphoric. The basal metabolic rate was lowered, there was a slowing of the pulse and an increase in body weight. Tremor disappeared, the goiter diminished in size and the exophthalmos regressed. Animal experiments showed that the estrus-producing compounds prevent thyroid activity in three ways: they check the production of the thyrotropic hormone by the anterior lobe of the hypophysis; they prevent the thyrotropic hormone from exerting its stimulating effect on the thyroid, and they have an antagonistic effect on the action of the thyroid secretion. Clinically the estrus-producing compounds control hyperthyroidism only when the latter is of ovarian origin. Treatment with estrus-producing compounds is the only physiologic treatment of hyperthyroidism available at present. It is the treatment of choice in indicated cases.

Prensa Médica Argentina, Buenos Aires

36:2107-2150 (Oct. 21) 1949. **Partial Index**

*Dermatomyositis and Visceral Cancer. M. I. Quiroga and H. Böttrich.—p. 2107.
Malignant Tumors of Biliary Tract: Observations in Six Years on Biliary Surgery with Cholangiography During Operation. A. J. Lasala.—p. 2136.

Dermatomyositis and Visceral Cancer.—Quiroga and Böttrich stress the association of acute dermatomyositis with visceral cancer. They cite the case of a man aged 48 who was apparently in normal health until the appearance of dermatomyositis followed soon by the development of clinical symptoms and roentgenologic signs of visceral cancer. Diagnosis of pulmonary cancer with metastases was made three months before death and was verified at necropsy.

Presse Médicale, Paris

57:965-980 (Oct. 22) 1949. **Partial Index**

*Streptomycin Resistance in Relation to Form of Tuberculosis; Its Significance in Management of Treatment. E. Bernard, B. Kreis and A. Lotte.—p. 965.
New Treatment of Alcoholism. A. Requet and L. Revol.—p. 966.

Resistance to Streptomycin.—Bernard and his co-workers observed that tubercle bacilli in the cerebrospinal fluid maintained their initial sensitivity to streptomycin in 11 of 13 cases of recurrent tuberculous meningitis, even though the patients

had been given streptomycin for periods up to seven months. Considerable differences with respect to resistance to streptomycin ranging from 1 to more than 1,000 units of the drug were observed in the same patient, depending on the location of the lesion from which the resistant strains were obtained—lungs and meninges, or lymph nodes and pleura. Strains resistant to more than 10 units of the drug were observed in patients with pulmonary tuberculosis of ulcerous or fibrocaseous type. The strains became resistant after thirty to sixty days of treatment in 25 per cent of the cases, after sixty to ninety days of treatment in 48 per cent and after more than ninety days of treatment in 70 per cent. These results compare well with those obtained by American authors and may serve as a guide for treatment. Streptomycin treatment of tuberculous meningitis may be prolonged for many months and may be repeated at once in recurrences. Streptomycin may be given for long periods in miliary or nodular tuberculosis, although rare cases of resistance do occur. Only 9 of 90 patients with pulmonary tuberculosis and cavities obtained closure of cavities when treated with streptomycin alone. Follow-up for one to two years showed that closure was maintained in only 6 of these patients. Cavities and caseating lesions present favorable environment for rapid multiplication of tubercle bacilli. Growth of the sensitive strains may be arrested, but the few initially resistant strains continue their growth without interruption and soon become predominant. Streptomycin therapy must be combined with collapse therapy, which remains the main treatment of tuberculosis with cavitation. Continuance of streptomycin therapy in patients with lesions containing organisms resistant to the drug not only is ineffective but may become an aggravating factor, since certain organisms grow more rapidly in a medium saturated with streptomycin. Streptomycin can be employed without restriction in many cases. Its employment in some may rapidly become useless and even harmful.

57:989-1012 (Oct. 29) 1949

*Heparin and Rheumatism: Antiexudative Effects of Heparin. E. Donzelot and H. Kaufmann.—p. 989.
*Administration of Thyroxin After Thyroidectomy for Toxic Goiter in 700 Patients. R. Berger.—p. 991.
Early Surgical Treatment of Hodgkin's Disease. R. Journoud.—p. 993.

Heparin in Rheumatic Disorders.—Donzelot and Kaufmann treated 8 patients who had rheumatic disorders with heparin. Three intravenous injections of 100 mg. of heparin at eight hour intervals were given daily for five to seven days. Continuous perfusion with heparin in 500 to 1,000 cc. apyrogenetic isotonic sodium chloride solution was practiced in severe cases. Three hundred milligrams of heparin was given during the first twenty-four hours, the dose of heparin being progressively increased to 450 and 600 mg. during the following days under control of the coagulation time, which should not exceed 40 minutes. The perfusion was continued for one week. Considerable improvement resulted in 7 of the 8 patients who did not respond to salicylates, 2 having rheumatic pancarditis in its terminal stage. Arthralgia disappeared nearly instantaneously in some cases and within three to four days in others. Periarticular edema and joint effusions were rapidly absorbed. Pericardial effusion was absorbed in three to seven days. In 1 patient with a pulse rate above 100, the rhythm was reduced to 65 in six weeks. The prolongation of the P-R interval disappeared rapidly, and the slightly affected T wave was restored to normal. The blood sedimentation rate was restored progressively to normal. The authors believe that heparin exerts an antiexudative effect by absorption of exudate and edema and that it influences the protein equilibrium of the blood, with which the phenomena of osmosis and exudation are associated. Heparin may also have an effect on capillary permeability and may act as an inhibitor of hyaluronidase, which seems to be an important factor in rheumatism. This concept seems justified by additional observations in 3 cases of chronic polyarthritis, in several instances of pleural and pericardial effusion associated with tuberculosis, of subacute pulmonary edema and of postphlebitic chronic edema. Disturbances of coagulation and a tendency to exudate are frequently associated with a common humoral impairment. Heparin seems to play an important part in maintaining the fluidity of the blood and in regulating the phenomena of osmosis and of diffusion.

Administration of Thyroxin After Thyroidectomy for Toxic Diffuse Goiter.—To prevent a postoperative thyroid crisis Berger administered thyroxin after thyroidectomy to 700 patients with diffuse toxic goiter. A dose of 5 to 7 mg. of thyroxin proved adequate in the majority of the cases. Too high a dose may cause a toxic reaction with high fever, severe tachycardia and apprehension. A crisis may result from too small a dose. The glycemia test is recommended to establish the adequacy of the given dose of thyroxin. This test is based on the fact that a pronounced increase in glycemia following thyroidectomy is indicative of a decrease in the amount of thyroxin in the plasma, as compared with the preoperative concentration.

Revista Chilena de Pediatría, Santiago

20:315-362 (Aug.) 1949. **Partial Index**

*Craniofacial Dysostosis: Case. Z. Fuentes Acevedo and G. Valenzuela Lavin.—p. 337.

Craniofacial Dysostosis.—Fuentes Acevedo and Valenzuela Lavin report the first case of craniofacial dysostosis in Chilean pediatric literature. A 13 year old girl presented all the symptoms described by Crouzon as characteristic of the condition. There was no familial tendency. The authors studied the collaterals for three generations and did not find another instance of this syndrome. Early diagnosis is important in the surgical treatment of the condition. Operation in their case was not indicated because the patient was seen late, after the establishment of ocular lesions, and did not have intracranial hypertension. The cerebral and ocular lesions remained unchanged during the seven years the patient was observed. Neurosurgical intervention is indicated in cases with clinical symptoms, intracranial hypertension and roentgen signs of craniostosis.

Schweizerische medizinische Wochenschrift, Basel

79:931-950 (Oct. 1) 1949. **Partial Index**

*Treatment of Diabetic Coma with Cocarboxylase: Experimental Bases and Clinical Results. S. Markees and F. W. Meyer.—p. 931.
Employment of Purified (Recrystallized) Preparations of Insulin in Conditions of Insulin Allergy. E. Schwarz and F. Koller.—p. 936.
Resorption and Decomposition of Streptomycin in Colon. M. and H. Roost-Pauli.—p. 942.

Diabetic Coma Treated with Cocarboxylase.—Experiments carried out by Markees and Meyer on rabbits showed that pyroracemic acid is a normal constituent of the blood. Large amounts of this keto acid were decomposed within a relatively short time by the healthy organism to which the sodium salt of the pyroracemic acid was supplied. The diabetic organism in the compensated state presents a normal content of pyroracemic acid. This acid cannot be exchanged with the same velocity when an extra load is placed on the organism, and consequently its utilization is delayed. Endogenous hyperpyruvemia is present in the state of decompensation, that is, in precoma and coma. Insulin does not have an immediate effect on the utilization of the pyroracemic acid. The fasting content of pyroracemic acid can be lowered by the administration of thiamine hydrochloride in normal animals, and the delayed decomposition and exchange of pyroracemic acid can be normalized in diabetic animals. Thiamine hydrochloride is no longer effective in the state of acidosis, but the endogenous hyperpyruvemia may be cleared by the administration of phosphorylated thiamine hydrochloride, the so-called cocarboxylase. Diabetic rabbits in coma were saved by combined treatment with cocarboxylase, riboflavin and insulin, while all the animals treated with insulin alone died. Analogous results were obtained in a study of the psysiologic and pathologic conditions of the metabolism of the pyroracemic acid in 250 normal human beings and in 164 diabetic patients. Therapeutic trials with thiamine hydrochloride-pyrophosphoric acid (cocarboxylase) in patients

with diabetic coma demonstrated that the duration of coma may be shortened by combining the usual treatment of coma with insulin and replacement of fluids with early, repeated intravenous administration of cocarboxylase and intramuscular administration of riboflavin. Consciousness was restored rapidly, occasionally during the injection. The increase of the alkali reserve was accelerated and the pyroracemic acid level restored to normal. The purpose of administration of the coenzyme carboxylase is not that of a substitute for insulin. The cocarboxylase helps to clear the diabetic acidosis by its action on a specific substrate which cannot be regulated by insulin. The introduction of cocarboxylase in the treatment of coma thus presents an improvement of the therapeutic armamentarium.

79:1043-1070 (Nov. 5) 1949. Partial Index

Some Clinical Remarks on Surgical Indications in Blue Disease. O. Ritter.—p. 1043.
*Parotitis in Parinaud's Conjunctivitis. H. Koumrouyan.—p. 1045.
Clinical and Serologic Problems Connected with Rh Blood Group Research. P. Dahr.—p. 1047.
Studies on Human Aborted Ova with Special Consideration of Early Malformations and Their Causes. O. Kaeser.—p. 1050.

Parotitis in Parinaud's Conjunctivitis.—Koumrouyan reports *2* cases of Parinaud's conjunctivitis with concomitant homolateral parotitis in *2* girls aged 11 and 10 years. Both cases presented the same characteristics, an unknown etiology, absence of specific bacteria, and lack of clinical or serologic signs which would point to a specific disease such as tuberculosis, syphilis, mycosis or tularemia. Both patients had unilateral conjunctivitis with granulations, swelling of periauricular and cervical lymph nodes without tenderness and suppuration, and a diffuse unilateral parotitis, resembling virus sialadenitis such as is observed in epidemic parotitis or in epidemic submaxillitis due to virus. The acute swelling of the salivary gland occurred early, simultaneously with, or perhaps even before, the periauricular adenitis in the first patient, and after the appearance of the adenopathy in the second patient. The parotitis ran a rapid course, but without suppuration and without macroscopic modification of the saliva. Parotitis subsided first, swelling of the lymph nodes next and conjunctivitis last. Acute diffuse swelling of the salivary gland was demonstrated by sialography. The author believes that his report of Parinaud's conjunctivitis associated with parotitis is the first in the literature. He suggests that the term "Parinaud's triad" be substituted for the old term "Parinaud's conjunctivitis." The syndrome is characterized by unilateral conjunctivitis with granulations, periauricular and cervical adenitis and unilateral parotitis. All the lesions of this symptom triad are homolateral, and one or the other of the symptoms predominates in a given case.

Semaine des Hôpitaux de Paris

25:3495-3528 (Nov. 14) 1949

First Satisfactory Results Obtained with Aureomycin in Richettsioses in North Africa. E. Benhamou, Destaing, Ferrand and others.—p. 3495.
Role of Pituitary-Hypothalamic System in Pathogenesis of Erythremia (Vaquez' Disease). E. Haynal, F. Graf and E. Matach.—p. 3498.
Post-Traumatic Nervous Disturbances. P. Milliez and F. Lhermitte.—p. 3501.
*Surgical Treatment of Hodgkin's Disease. J. Bernard and B. Ossipovski.—p. 3503.
*Role of Peritoneal Dialysis in Treatment of Acute Uremia. M. Dérot.—p. 3508.

Surgical Treatment of Hodgkin's Disease.—Bernard and Ossipovski operated on 3 patients with Hodgkin's disease, *2* boys aged 11 and 9 years and a young woman aged 19, removing a cervical lymph node in the first patient and a subclavicular lymph node in the second and third patients. The patients were alive and in good health eleven, eight and six years, respectively, after the intervention. Surgical treatment is indicated in recent, isolated lesions of moderate size. It is contraindicated in multiple lymph node or visceral involvement associated with fever, although even then results may not be unfavorable. Clinical, experimental and therapeutic data show that a malignant disease of the blood may be localized in its early stage and that early surgical removal of the initial focus may result in long survival. According to the authors' concept, the nature of malignant diseases of the blood may differ. Each disease may be formed by a combination of various syndromes, some resulting in two or three foci in the initial stage and some in a single focus in the initial stage. The occurrence of a single lesion in the initial stage seems to be demonstrated not only in Hodgkin's disease but in other malignant diseases of the blood as well. This concept makes it imperative to track down the initial and localized manifestation. Removal of the initial tumor, whether in lymph nodes, skin, bone or viscera, rather than the generally practiced biopsy, is advisable in the absence of contraindications. Results may not be brilliant and often may be disappointing. The initial lesion in Hodgkin's disease may be mediastinal or abdominal and therefore inaccessible. The superficial adenopathy may appear isolated, but careful examination may reveal an affected mediastinal lymph node, contraindicating surgical intervention. The results obtained in the authors' cases justify cautious pursuit of surgical therapeutic trial.

Peritoneal Dialysis in Acute Uremia.—Dérot treated 13 patients with acute uremia by peritoneal irrigation. One patient had scarlatinal anuria, 4 had mercurial nephritis, 5 had hepatonephritis caused by Clostridium perfringens, 1 had glomerulonephritis from exposure to cold, 1 post-transfusional nephritis and 1 acute cryptogenetic hepatonephritis. Ten patients made a complete recovery. There were *2* deaths from acute pulmonary edema. The technic consisted in the introduction into the peritoneal cavity of an inlet and an outlet plastic tube *2* to 3 mm. in diameter. Abbott and Shea's solution A, containing sodium chloride, calcium chloride, potassium chloride, sodium phosphate, magnesium chloride, sodium bicarbonate and dextrose, was employed. It was heparinized in the ratio of 10 mg. per liter, and 100,000 units of penicillin were added to it. The necessity of using a slightly hypertonic, heparinized solution to which penicillin was added is stressed. Irrigation with 30 liters of the solution within twelve to sixteen hours proved to be most effective and free from accidents. Forty to 60 Gm. of urea may be removed from the body by a single dialysis. Irrigation may be repeated on the following days. Intraperitoneal irrigation is well tolerated and accidents are rare. It is contraindicated in patients recently subjected to laparotomy and in the presence of suppurative pelvic lesions. It does not require complex and expensive apparatus as is the case with the artificial kidney. Intraperitoneal irrigation should be used alternately with exchange transfusions when possible. Results obtained with the combined use of exchange transfusions and peritoneal irrigation are superior to those obtained with either method alone.

Ugeskrift for Laeger, Copenhagen

111:1281-1322 (Nov. 17) 1949

*Preliminary Experiences with Ultranol Treatment of Sarcoid of Boeck. L. Gilg.—p. 1281.
Psychosomatic Ophthalmology. E. Godtfredsen.—p. 1285.

Preliminary Experiences with Ultranol (Vitamin D_3) Treatment of Sarcoid of Boeck.—Gilg reports that in the dermatologic division of the Finsen Institute vitamin D_3 has been used almost exclusively in the treatment of sarcoid of Boeck during the last two years. Forty-two patients, mostly in the 40 to 50 age group, are being treated. Before the start of treatment examinations are made to confirm the diagnosis, determine the extent of the disease and exclude the presence of other diseases which might contraindicate the treatment. Severe organic heart disease and kidney diseases are considered absolute contraindications. Although the short observation period does not allow final evaluation of the results, the conclusion at this stage is that vitamin D_3 therapy of Boeck's sarcoid can lead to subjective and objective improvement which seems to surpass the results attained by earlier methods of treatment. It is possible by careful control to avoid undesirable side effects. Treatment is now begun with a dosage considerably lower than that used in lupus vulgaris, and the vitamin is discontinued or the dosage reduced on the first symptom of intoxication.

Book Notices

THE REVIEWS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES AND DO NOT REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED.

Blood and Plasma Transfusions. By Max M. Strumia, M.D., Sc.D., Associate Professor of Pathology, Graduate School of Medicine, University of Pennsylvania, and John J. McGraw, Jr., M.D., Instructor in Pathology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Cloth. $7.50. Pp. 497, with 124 illustrations. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1949.

The opinions and work of two recognized authorities on blood and plasma are presented compactly in this book. Dr. Strumia is a world-renowned pioneer in the use of and studies on plasma; his work has always shown originality and ingenuity. Dr. McGraw, his associate, had wide experience in blood transfusion therapy during World War II. They write from vast personal knowledge and practice in this field. The valuable material offered in this relatively small, neatly assembled and clearly printed volume should be read and referred to by everyone who uses blood or plasma frequently or is responsible for blood bank organization and management.

The book obviously is meant to present personal experience and opinions, for it has a minimum of references and few quotations from other literature. This increases its readability. However, when the authors discuss material not based on original work, as in the early chapters, complete coverage of some subjects is lacking and references are incomplete. One further point of criticism is the relatively large amount of space devoted to plasma. While this discussion is of great historical and developmental interest, present-day use of plasma compared to whole blood and blood fractions has diminished greatly. Plasma protein fractions are given only brief attention considering their increasing possibilities.

Despite these omissions this volume is so important and useful as a concise and authoritative text on blood and plasma transfusions that the book should be kept at hand and not merely consulted as an occasional library reference.

Health Guides and Guards. By Francis P. Wall, Professor and Director of Physical Training and Hygiene, New York University, New York, and Louis D. Goldberg, M.D., M.P.H., Assistant Professor of Epidemiology, Columbia University, School of Public Health, New York. Fourth edition. Cloth. 96. Pp. 390, with 12 illustrations. Prentice-Hall, Inc., 70 5th Ave., New York 11, 1949.

Evidence of a sincere effort on the part of the authors to keep their material up-to-date, as well as of acceptance by the intended recipients, is found in the fact that this is the third revision of the popular book for young adults. Another desirable feature is the recognition that interest in health education may shift from time to time, requiring more emphasis on special aspects that in previous times may have come in for secondary attention. A case in point is the transfer by the authors of the section on the genital system, venereal diseases and sex hygiene to an early part of the volume. Devotion of nine chapters to this general topic indicates the completeness with which it is handled.

The book is divided into two principal parts, personal hygiene and community hygiene. In addition to the chapters on sex aspects, the important systems of the body are discussed in individual chapters, with a final chapter on first aid, in the first part.

In the second part are chapters on infection and immunity, contact diseases and those spread by intermediate hosts, water, milk and food sanitation, sewage and refuse disposal and public health administration. In this last chapter the tremendous extent to which federal agencies have entered the field is described, with some reservations as to whether this will work for ultimate good. There appears to be some overemphasis on work done by such groups as compared with that done by industrial and private agencies.

An interesting feature of the book is a series of 27 sets of questions intended for class use. The yes-or-no technic of reply is employed. The questions have been selected carefully and are definitely stimulating in nature. Twelve illustrations are provided, chiefly diagrammatic in character.

Physik für Mediziner. Von Hofrat Professor Dr. Fritz Hauer, Wien. Boards. 49 Austrian schillings. Pp. 397, with 498 illustrations. Urban & Schwarzenberg, Frankgasse 4, Wien IX/71, 1949.

This systematic presentation of physics from the standpoint of the physician and medical student merits high praise. Every important aspect of physics is treated accurately and concisely, and the application to medicine is made clear. Unexpected light is sometimes shed on familiar subjects, as when the author applies the dynamics of moving particles to corpuscular sedimentation. The section on mirrors and lenses contains diagrams to show the construction of ophthalmoscopes and cystoscopes, for instance, and many other examples might be mentioned to show how this book aids in the understanding of technical problems in medicine. Mechanics, acoustics, heat, optics, electricity and ionizing radiations are taken up in turn. The presentation is not popular, for it is orderly and precise, but the concreteness of expression and the unaffected style make it easy reading for anyone with a reasonable command of scientific German. The illustrations, drawn with a most commendable accuracy and clarity, are outstanding. The section on optics, comprising 86 pages and 112 illustrations, would be a welcome supplement to some current American textbooks of physiology, which have been known to omit the subject of vision altogether. This book should be accessible to every medical student, and it deserves translation into English.

Children of Today and Tomorrow. By Ethel Dukes and Margaret Hay. Preface by David Mace, M.A., B.Sc., Ph.D. Cloth. $2.50. Pp. 240. The Macmillan Company, 60 5th Ave., New York 11, 1949.

Much helpful background and practical information for parents, teachers, psychologists and social workers is contained in this book, which is based on firsthand experiences of qualified workers in the field of pediatric sociology. As the introduction implies, it is time for revision of older concepts and the adoption of new concepts to bring this subject into proper focus for modern needs.

A logical division into three main parts is followed by the authors, with the over-all headings of "Children and What We Make of Them," "Discerning Individual Differences" and "The Parent-Child Relationship." The many probabilities in a child's future are gone into extensively in the first section, with an especially good chapter on a wide variety of practical problems, including enuresis, speech defects and educational difficulties. Full details of satisfactory routines that have been established are described. In the second section there is demonstration of fine discernment in the various chapters dealing with the hypersensitive child, the dull child, the gifted child and several other classifications.

Average parents will find much of interest in the last section, in which many specific examples illustrate problems developed through unsatisfactory adjustment of families. Specific advice on how parents may obtain help for difficult children is provided in an appendix, in which are listed physical defects that should cause concern and routines for referral. A second appendix contains a list of 32 books recommended as helpful for collateral reading. Physicians should find this volume worth recommending to parents who have child relation problems and may even recognize them but are confused and need helpful orientation to enable them to understand and work with the physician toward an effective solution.

Diseases of the Heart. By Charles K. Friedberg, M.D., Associate Physician, Mount Sinai Hospital, New York. Cloth. $11.50. Pp. 1081, with 79 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C. 2, 1949.

The author has created an entirely new textbook on the heart which should appeal strongly to the medical student, whether he is just beginning or is far advanced in graduate work, and to practicing physicians who seek accurate information on any of the facets of this increasingly complicated subject. The text is arranged in six parts, all of which are well integrated to avoid unnecessary repetition and to make it easier for consultation. Each chapter is fully related by cross reference.

In the preface Dr. Friedberg says that he tries to present a comprehensive and integrated discussion of the several diseases and disorders of the heart and remarks correctly: "The swift pace of recent advances in this subject calls for a reorientation

in presentation and a modification in emphasis from that" usually found. He has been successful in accomplishing his purpose. Certainly the point of view is suited to thoroughness and clarity of understanding of each of the many problems with which he deals, and the material is unusually abreast of most modern knowledge. The entire field of diseases of the heart has been adequately covered.

Part I deals with function of the heart and its impairment, including general matters of the mechanisms involved; the causes of the phenomena resulting and pathogenesis of each phenomenon. A section on circulatory measurements includes all of the accepted methods and is followed by one on treatment. Next the arrhythmias are discussed, including their electrocardiographic manifestations, and sound recommendations are made for their management. Part III deals comprehensively with the various disturbances in the blood supply of the heart, their causes, effects and treatment. Then long and adequate sections are devoted to the structural abnormalities of the heart and to the etiologic forms of heart disease, the latter of which requires some 400 pages. The book closes with sections on such of the special problems of heart disease as pregnancy, surgery and insurance as well as compensation in relation to heart disease. A detailed index is included. Throughout the text there is a modern and full bibliography. The volume certainly deserves high praise for its intrinsic soundness and merit. Few can afford to omit it from their libraries.

Die Psychohygiene: Grundlagen und Ziele; Psychoanalyse und andere Psychotherapie; Sonderfragen der Medizin; Soziologie; angewandte Psychohygiene. Herausgegeben von Maria Pfister-Ammende, unter Mitarbeit von F. Alexander et al. "Bücher des Werdenden." Zweite Reihe, Band II. Herausgegeben von Paul Federn und Heinrich Meng. Boards. 28 Swiss francs. Pp. 423. Hans Huber, Marktgasse 9, Bern, 16 (distributed by Grune & Stratton, Inc., 381 4th Ave., New York 16), 1949.

The text of this work is in German with brief summaries in French and English. It is in effect a compilation of papers on the subject of mental hygiene by prominent psychiatrists and psychoanalysts of Europe, England and the United States. The summaries indicate the content of each paper, but the full import of the authors' views on mental hygiene can be gained only by reading the German text.

In the section on sociology are presented papers on race hatred, prevention of war and the problems of peace among nations. National mental health is covered as well as the mental health of individuals. These papers are an introduction to a subject which must be explored further by the students of individual and collective behavior if men are to live in harmony.

The mental health of various age groups and specific problems of these age groups are discussed as well as such problems as alcoholism, drug addiction, marriage and religion. Most of the papers are psychoanalytically oriented, although many of those dealing with specific problems are eclectic in approach. The latter part of the volume deals with public health, mental hygiene clinics, public education on the subject and the teaching of mental hygiene. These papers are of particular importance to those who are directly concerned with mental health as part of the general problem of public health.

This collection of papers as a whole and certain individual presentations would be of value to general physicians, public health personnel, psychiatrists, sociologists and even politicians. Translation of these papers into English is recommended so that they may be more generally read.

Textbook of Physiology. By William D. Zoethout, Ph.D., and W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa, Iowa City. Tenth edition. Cloth. $4.75. Pp. 710, with 307 illustrations. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1949.

The present edition of this popular textbook for dental and pharmacy students has been extensively revised to include significant recent contributions. The entire book has been rewritten. The material is clearly presented, and the topics are satisfactorily selected. The illustrations are of good quality and well distributed. This book can be recommended as a textbook for a physiology course for dental students.

The Maggid of Caro: The Mystic Life of the Eminent Codifier Joseph Caro as Revealed in His Secret Diary. By Hirsch Loeb Gordon, A.M., Ph.D., M.D. Based on Unpublished Manuscripts. Cloth. $4. Pp. 396, with 182 illustrations. Pardes Publishing House, Inc., 28 Canal St., New York 2, 1949.

This book deals with the life of Joseph Caro (1488-1575), an exiled Spanish Jew who for more than 52 years received messages from his familiar spirit, or Maggid, which communications were described by him in Aramaic in his diary, "Maggid Mesharim." Representative selections from the diary, which with the author's comments occupy more than half the book, are said to be its first translation into any other language.

These messages came to Caro uttered aloud from his own mouth, as was attested by various scholars. The nature of them constitutes the book's center of interest. To this end the views of fourteen authorities, mostly psychiatrists, are presented first of all, with almost as many different conclusions and diagnoses as to the diarist's mental state. Dr. Gordon himself favors an interpretation of hallucinations and hypnagogic dreams but no psychosis. Analogies with other mystics come to mind, but here is found in addition to *maggidim* a formidable array of more or less personified supernatural communications—*oboth, yideoni, gillin Elijah, golem, dibbuk, ruah, bath Kol, pitka, yezer, gilgul, malakim, shedim* (with five subvarieties specializing to cause specific human diseases) and *sarim*, together with non-Jewish *larcs, lemures, genii* and *daemones*.

Unfortunately, this unusual and promising subject is greatly marred by the presentation. The erratic arrangement of material, which contains much that is irrelevant, the author's poor critical judgment and the unnecessary crowding of the text and illustrations with weird names and characters constitute weaknesses that are surpassed only by the slovenliness of the book making. The cover is weak, the paper cheap and most of the illustrations atrocious, with halftones so coarsely screened that they are almost unintelligible. Composition and proofreading are carelessly done—seven typographical errors were apparent in a casual perusal of the first 27 pages. One would think that these defects would be irritating to all cultured readers. To the prevailing mediocrity, the frontispiece, a reproduction of a modern portrait drawing of Caro, and an adequate index are welcome exceptions that help one to overlook the imperfections, if one is sufficiently interested to learn details about this peculiar and well authenticated psychic phenomenon.

Operations of General Surgery. By Thomas G. Orr, M.D., Professor of Surgery, University of Kansas School of Medicine, Kansas City, Kansas. Second edition. Cloth. $13.50. Pp. 890, with 721 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C. 2, 1949.

This book presents to general surgeons and surgical residents a balanced account of modern operative technics in general surgery and in the special fields of surgery. The new edition follows the plan of the previous edition, and chapters are arranged by systems such as thorax and respiratory system, breast, digestive system and female reproductive system. The book is remarkable for including nearly every type of operative procedure. Additions and revisions have been made in many chapters to include the new technics for esophagogastrostomy, total gastrectomy, repair of strictures of the bile ducts and surgery of the heart and great vessels. The text is interesting, to the point and easily read. A valuable feature of the book is careful consideration of the dangers and safeguards for every operative procedure. To simplify his text, the author has selected only the most accepted technics for each operation. For example, in considering operations for carcinoma of the rectum, he has chosen the Miles one stage abdominoperineal, the Lahey two stage operation, the Lockhart-Mummery posterior resection of the rectum and Dixon's technic for anterior resection of the rectum with preservation of the sphincter. Such a careful choice represents the operations most frequently used and acceptable to each school of thought, but omits the great number of variations of the standard procedures which would confuse a beginner.

The majority of drawings have been selected from the works of other authors and for most of the common operations of general surgery are well chosen and adequate. In depicting some of the specialized procedures, such as pulmonary resection

and esophagogastrostomy, the detail is not sufficient unless one is familiar with this type of surgery. In selecting operations on the sympathetic nervous system, the operation for preganglionic section generally used where dorsal sympathectomy is indicated, has been omitted. Four types of sympathectomies are described for hypertension, two of which might be considered inadequate and obsolete by some surgeons. With respect to the material on page 96, an inexperienced surgeon might assume that pedicled flaps are often used to cover the skin defect after excision of Dupuytren's contracture, but these are employed only in extreme cases. Free full thickness grafts are considered best.

These are minor criticisms and do not detract from the book itself. The book is well organized and compiles in one volume the operative methods used in nearly every type of operative procedure. It is highly recommended for both the general surgeon and the surgical resident.

The Eye and Its Diseases. By 92 International Authorities. Edited by Conrad Berens, M.D., F.A.C.S., Managing Director of The Ophthalmological Foundation, Inc., New York. Second edition. Cloth. $16. Pp. 1092, with 436 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C. 2, 1949.

This general textbook of ophthalmology is unique because of the collaboration of a large group of experts, 92 in number, each of whom is a recognized authority in the particular field in which he writes. Many of the chapters appear, in fact, to be condensations of larger monographs previously published by their authors. Little criticism can be made of the factual material presented except that in a few isolated cases, such as in the chapter on accommodation, the author presents personal views which are not generally accepted. While stating of unorthodox opinion in a basic textbook is not necessarily objectionable, this does not appear to be the appropriate place to emphasize one's personal theories to the exclusion of other views.

This second edition has been brought up-to-date and includes several features not encountered in most similar textbooks. The most commendable of these are the chapters dealing with the history of ophthalmology, medical jurisprudence, pathologic technic, bacteriologic technic and preventive ophthalmology. New chapters have been added on illumination, physiologic chemistry and gonioscopy. With so many authors contributing chapters, some deficiency in continuity is to be expected, but on the whole the editor has done a satisfactory piece of work in arranging the material. Occupying as it does a position midway between the various abbreviated textbooks and Duke-Elder's monumental work, this book has an important place in any ophthalmologic library.

Techniques of Supervision in Public Health Nursing. By Ruth B. Freeman, R.N., B.S., M.A., Administrator, Nursing Services, American National Red Cross, Washington, D. C. Second edition. Cloth. $5. Pp. 466. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C. 2, 1949.

This book presents a comprehensive picture of the many responsibilities and contributions of the supervisor and suggests technics and methods by means of which these can be most effectively implemented. The author intends that these suggested approaches to supervisory functions be regarded merely as guiding fundamentals, the interpretation and application of which are subject to the analytic ability and creative ingenuity of the supervisor.

All persons within the sphere of supervisory activities will be aided in their perspectives by the author's reminder of the tremendous potential of the supervisor in translating agency policies, in coordinating interdepartmental and other agency services and in promoting optimum functioning of the staff. At the same time, she points out the limitations of the supervisory process in the face of unsound administration, inadequately trained personnel and indecisive policies. The discussion of common challenging interpersonnel relationship problems and the application of the principles of practical psychology in their solution will help develop insight into everyday problems and will provide one with working tools with which to meet them. Practical hints on such collateral supervisory duties as office administration, construction of manuals, maintenance and use of equipment, and maintenance of staff health are included.

Although directed toward the field of public health, this comprehensive well-written book can be recommended for use in the teaching and guidance of supervisors or potential supervisors in any aspect of the nursing field. It should be included in the reference libraries of all schools of nursing and hospitals.

Digitalis and Other Cardiotonic Drugs. By Eli Rodin Moritt, M.D., Chief of Medicine, Veterans Administration Hospital, Oakland, Calif. Second edition. Cloth. $5.75. Pp. 245, with 22 illustrations. Oxford University Press, 114 5th Ave., New York 11, 1949.

Emphasis is placed on clinical use of digitalis and the cardiac glycosides rather than on chemical or pharmacologic studies. The recent important work on the mechanism of action of digitalis in congestive heart failure is well reviewed and expertly analyzed. Each of the commonly used glycosides, such as digitoxin, digoxin, lanatoside C, gitalin and ouabain, is discussed at length with a thorough review of the literature. The bibliography at the end of each chapter is extensive. This book is an excellent reference for the medical practitioner who needs authoritative information on the use of the many digitalis-like products now on the market. For those who like to delve more deeply in the subject, it would have been advantageous to have a short review on the interesting chemical developments that have taken place in this field, particularly the studies relating chemical structure to pharmacologic action. Although some of this material is included with the discussion of each particular glycoside, an earlier section in which the general principles were discussed before taking up each glycoside separately would aid one to obtain a clear understanding of the whole subject.

Le diagnostic bio-clinique en radiologie pulmonaire. Par Georges Voluter, P.D. de radiologie médicale à l'Université de Genève. Paper. 40 Swiss francs. Pp. 452, with 100 illustrations. S. Karger, Holbeinstrasse 22, Basel; 215 Fourth Ave., New York 3, 1949.

This book stresses the value of teamwork in approaching the interpretation of roentgenographic studies of the lungs. The importance of a dynamic conception of lung pathology is emphasized. The author considers sensitization, immunization and allergy as they modify pulmonary lesions. Under the name "constellation" he describes in detail the different possibilities of pulmonary reactions in the presence of tuberculous infection and its pathogenesis. He also discusses the organic and functional responses of arteries, capillaries, veins and lymphatic and connective tissue elements. Considerable theory is devoted to the implications of his observations.

In every chapter the author considers at length the pathology and pathogenesis of the various lesions. Of particular interest is his discussion of erythema nodosum and Löffler's syndrome. There is also an excellent discussion of reticulosis, Boeck's disease, eosinophilic granuloma and other diseases. This book is well written; the only criticism from the standpoint of the radiologist is the paucity of roentgenograms and pathologic sections. Many illustrations could not be included because of the high cost of publication. However, those that are included are excellent.

Black's Medical Dictionary. By John D. Comrie, M.A., B.Sc., M.D. Revised by William A. R. Thomson, M.D. Nineteenth edition. Cloth. $3.50. Pp. 995, with 513 illustrations. [The Macmillan Company, 60 Fifth Ave., New York 11]; Adam and Charles Black, 4, 5 & 6 Soho Square, London, W. 1, 1948.

This publication is distinctly British in character as well as origin. As with all previous editions, this one is designed to provide a nontechnical dictionary of medical terms, diseases and methods of home treatment and sanitation for guidance of the layman, nurse and other medical personnel responsible for the care of the sick, particularly in the absence of advice or supervision of a qualified physician. The latest edition is intended to include advances in medicine since the eighteenth edition was reprinted (with slight changes) in 1946.

This dictionary is a veritable storehouse of information concerning the variety of terms used in medicine. It thus constitutes a reference work of considerable value to those interested in the various aspects of the subject. There are few typographic errors and the text is written in the clarity and brevity of style for which the British are justly noted. Most of the terms and names for drugs are peculiarly British, both in

spelling and usage. This limits its usefulness in English-speaking countries outside the main sphere of British influence or wherever the traditional English spelling and terminology has been abandoned.

The book is considerably out-of-date concerning both recent and not so recent advances of American medicine. For instance, the statement that Blaud's Pill is "much used in the treatment of anaemia" is not true in the United States, where superior iron preparations have superseded it. This illustrates what is true for most of the statements in the book in that they are apparently applicable to practices still prevailing in the United Kingdom. The book therefore falls short of including the more modern concepts in the therapy of disease. Another example of this is illustrated by the antiquated discussion of treatment for pneumonia, which fails to mention the use of penicillin and sulfonamides other than the relatively toxic derivatives, sulfanilamide and sulfapyridine. Some of the newer, less toxic sulfonamides and antibiotics are elsewhere defined, but their various therapeutic applications are not adequately covered. This publication cannot be considered a reliable guide to modern concepts in the treatment of disease, and it thus fails to achieve that important phase of its purpose.

A Textbook of Physiology. Originally by William H. Howell, M.D. Edited by John F. Fulton, M.D., Sterling Professor of Physiology, Yale University School of Medicine. With the Collaboration of Donald H. Barron and others. Sixteenth edition. Cloth. $10. Pp. 1258, with 356 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftsbury Ave., London, W.C.2, 1949.

Since the 1946 edition of the well known textbook originated by William H. Howell in 1905, some obsolete material has been deleted, some portions have been completely rewritten and new chapters have been added. The most extensive addition, six chapters on the endocrine glands by Dr. Jane Russell, add to the completeness of the text but are rather narrow and uninspired in presentation. Dr. Samuel Gelfan has written an excellent new chapter on the functional activity of muscle. As textbooks go, this one seems acceptable.

A Companion to Surgical Studies. By Ian Aird, Ch.M., F.R.C.S., Professor of Surgery in the University of London. Cloth. $15. Pp. 1060. Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1949.

Although published without illustrations, the book by Mr. Aird, a leading British surgeon, has achieved an excellent and detailed review of general surgery. The British point of view differs only moderately from that in the United States, and the carefully written, detailed and comprehensive text should make a welcome addition to surgical literature. All phases of surgery are covered and readily accessible through a carefully outlined 53-page index. The unique combination of pictorial language and thoroughness of detail will interest particularly those receiving training in surgery and those specializing in the field. Descriptions of pathology and anatomy and reference to physiology are included for most subjects or diseases presented. The text is not designed for a superficial reader but should well satisfy those seriously interested in broadening their knowledge of the field of surgery.

Nervous and Neurohumoral Regulation of Intestinal Motility. By W. B. Youmans, Professor of Physiology, University of Oregon Medical School, Portland, Ore. Cloth. $4.75. Pp. 129, with 32 illustrations. Interscience Publishers, Inc., 215 4th Ave., New York 3; 2a Southampton Row, London, W.C. 1, 1949.

This book, which is apparently the first of a series of monographs in the physiologic sciences edited by Visscher, Bronk, Landis and Ivy, deals with nervous and humoral factors involved in the regulation of gastrointestinal activity. The methodologic foundations of this research are described well. However, the results of stimulation of afferent and efferent nerves as well as the action of neurohumors such as acetylcholine and epinephrine are discussed rather sketchily. The literature is not adequately considered to make this monograph valuable as a source book. Each of the numerous brief chapters is provided with a list of references, but no papers after 1946 are listed.

The Development of Gynaecological Surgery and Instruments: A Comprehensive Review of the Evolution of Surgery and Surgical Instruments for the Treatment of Female Diseases from the Hippocratic Age to the Antiseptic Period. By James V. Ricci, M.D., Clinical Professor of Gynaecology and Obstetrics, New York Medical College, New York. Cloth. $12. Pp. 594, with illustrations. The Blakiston Company (Division of Doubleday & Company, Inc.), 1012 Walnut St., Philadelphia 5, 1949.

This book is truly a masterpiece, and Ricci has again distinguished himself as an authority on the history of gynecology, though he modestly claims to be not a medical historian but merely a clinician with a reverence for the past.

It is well occasionally to have such a work as this, or in the rush of modern practice of medicine sight of the past may be lost; medicine itself and specialties result from steady but gradual evolution, not over years but over centuries.

From Ricci's vast accumulation of historical data, one learns of the working of iron, the tempering of steel, the use of copper and bronze which preceded the working of these metals into tools, weapons and surgical instruments. One learns that the earliest surgical instruments probably were those made by the ancient Hindu surgeons and that those of the Hippocrateans and in fact even some modern instruments were only slight modifications of the Hindu instruments of antiquity. Even what is probably a vaginal speculum is one of these, and Hippocrates was undoubtedly familiar with a valvular, two-bladed rectal speculum. Excellent photographs of a trivalve and a bivalve vaginal speculum as well as many instruments found at Pompeii are shown. The book contains a profusion of well chosen illustrations.

From his discussion of early instruments, the author continues with his exhaustive search of the literature on such subjects as the study of female anatomy and its gradual clarification, the diagnosis of gynecologic ailments and then treatment.

The account of the diagnosis and digital removal of an hydatidiform mole by Paul Portal in 1685 is a fascinating example (page 102). Ricci's recounting of early cesarean sections is equally interesting.

His text marches on through the earlier years to the nineteenth century. Nothing of the sort would be complete without the story of Ephraim McDowell, the first to remove successfully an ovarian cyst. His description of his operation (1817) is quoted. Nathan Smith's similar achievement in 1821 is likewise described.

Ricci's bibliography is notable, much of it being original quotations in Latin, Greek, German, French or English. Ricci's own fluent knowledge of Latin and Greek in particular is undoubtedly a major factor in making this book possible. There are few others who could undertake such a task.

No medical library can afford to be without this work. As a reference it will be invaluable to any teaching institution, and clinicians will find this scholarly book delightfully interesting reading.

Your Nasal Sinuses and Their Disorders. By Albert P. Seltzer, M.D., M.Sc., Sc.D., Assistant Professor in Otolaryngology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Cloth. $2.50. Pp. 155, with 24 illustrations. Proben Press, Inc., 1776 Broadway, New York 19, 1949.

One of the problems encountered by the physician who writes for the layman is that of determining how much or how little medical information he should impart. A text can be either too scientific or oversimplified; unfortunately, not all physician-writers are capable of steering a happy, in-between course.

In this small volume the author does a reasonably satisfactory job of acquainting the lay reader with nasal sinuses and their disorders. The evolution of the nose and the sinuses comprises an especially interesting section of the book. However, his omissions are disturbing. One searches in vain for a discussion of both the medical and surgical treatments of sinus disease, topics of universal interest to sinusitis victims. The highly important subject of self medication is summarized in a brief paragraph. There are two controversial statements which do not appear to rest on well documented evidence, namely, that "the most common single complaint suggesting sinus trouble is probably headache" and "tobacco causes atrophic changes in the mucous membranes of the nose."

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PHYSICAL ALLERGY

To the Editor:—I am a physician aged 34, weight 180 pounds (82 kg.), height 5 feet, 10 inches (178 cm.) and in good general health. Five years ago, while stationed in Florida with the Army, I began to experience pruritus after a bath in hot, cold or tepid water. The head, arms and feet are not involved. The pruritis is fairly severe, lasting 30 to 60 minutes. At first it was limited to the after-bath period, but it is now more frequent and occurs in any damp humid weather, becoming more severe with increasing activity. During the winter it is mostly present after bathing. There is no dermatitis or urticaria at any time. Factors causing itch in order of severity are (1) shower, (2) bath, (3) hot humid weather, (4) rough towels or clothing and (5) embarrassing. Cotton clothing is more tolerable than wool or no clothing. After strenuous exercise, to the point where my capillaries are fully dilated, perspiration is profuse and the body is flushed, I can take an ordinary shower without any itch resulting. While I am exercising to this extent, my skin does go through the usual stages of pruritus, which disappears after a shower. I feel that my condition is a peripheral vascular disorder rather than allergic. It seems that any environment causing my peripheral capillaries to dilate, or constrict, sets up the itch reflex.

M.D., New Jersey.

This inquiry was referred to two authorities, whose respective replies follow.—EDITOR.

ANSWER.—Despite the absence of a rash or urticaria the condition described is clearly one of an increased response to thermal and probably mechanical stimuli. Usually described as cold or heat allergy, it lacks one of the outstanding requisites for allergy, evidence for an antigen-antibody reaction. The prevailing concept for this phenomenon implies a release of histamine from the cells by a mild stimulus, in this case mainly heat. Usually there is sufficient histamine to produce increased capillary permeability and consequent urticarial lesions. In this case apparently the amount of histamine is not sufficient for this purpose but is adequate for irritation of cutaneous nerve endings. Virtually all conditions described here are those which produce temperature changes in the skin. Mechanical stimuli apparently also are able to produce itching; for this reason, wool, which consists of rough laminated hairs, is more irritating than cotton. Strenuous exercise, by producing increased vasodilatation and circulatory flow, may be responsible for more efficient diffusion of the histamine away from the skin.

In most instances of this type the antihistamine drugs are useful. However, one could not expect to obtain results from such medication in this case unless the drug were used about one hour prior to the exposure or unless it were given several times daily. The most likely procedure which might yield results is a systematic exposure to heat and cold. This tends to condition the tissues or blood vessels toward histamine activity. The fact that the parts most exposed to temperature change (head, feet, arms) are not affected leads one to surmise that these parts may have acquired such a resistant state by constant exposure and gives further encouragement with respect to the possibilities of cold and heat treatments. Various technics can be used for this treatment (Feinberg, S. M.: Allergy in Practice, Chicago, Year Book Publishers, ed. 2, pp. 381-389). In this case, it will probably be necessary to give general exposures to heat and cold. One method would consist of exposure to a hot shower, followed by an ice rub, twice daily. Another method would utilize a heat lamp (infrared) for the heat source. Still another method would employ daily baths the temperature of which is increased every day. This is followed each time by exposure to cold (water or ice rub).

ANSWER.—The syndrome described represents a type of response about which relatively little is known. It appears to belong to the general category of response to physical agents. The more specific responses to cold, heat and mild trauma are well recognized and have been loosely spoken of as cold allergy or heat allergy, but there is strong evidence that these are not true allergies and should be known as hyperreactions or hypersensitivity. It is believed that one of the essential steps in these reactions is the release of histamine locally and also into the general system, yet desensitization by histamine and the use of antihistaminic drugs is frequently without appreciable value. If desensitization is continued for a year or more, improvement has been noted, but this may have been coincidental. It appears that the syndrome described is on the basis of a response to a variety of physical agents; heat, cold and other external irritants, such as wool applied to the skin. The complete mechanism is extremely complex and not fully understood. The following treatment is recommended:

1. Continued desensitization with histamine for at least one year by means of weekly subcutaneous injections beginning with 0.1 cc. of 1:1,000 solutions and increasing up to 1 cc. or to the upper limit of tolerance for the patient as determined by reactions of flushing, sensations of heat and other untoward effects. The dosage should then be continued at approximately that level. 2. Avoidance of the use of soap for bathing purposes. 3. Avoidance of the use of wool next to the skin. 4. Avoidance of exposure to extreme heat or cold, whether it be water, air or food. 5. Careful evaluation of possible emotional conflicts and the psychosomatic aspects of this problem.

CERVICAL CARCINOMA

To the Editor:—What are the current trends in the treatment of carcinoma in situ of the uterine cervix? David C. James, M.D., Phoenix, Ariz.

ANSWER.—Work on this problem is in an experimental state. Carcinoma in situ of the uterine cervix theoretically can be cured by removal of the local lesion. No doubt some have been or could be removed with cautery. A difference of opinion arises over the diagnosis of intraepithelial carcinoma or carcinoma in situ; some believe that invasion is necessary for a diagnosis of carcinoma. Obviously, some criteria must be established on which most workers will agree. Some workers now speak of basal cell hyperplasia, intraepithelial carcinoma and invasive carcinoma. One cannot be sure until after removal of the entire cervix and serial section that the lesion is on the surface, because it may invade beyond the site of biopsy. If these lesions are removed surgically, they should be studied with many sections to ascertain that invasion has not occurred; if invasion has occurred, cure will not follow.

Removal of the cervix or conization is a half-way measure that leaves many women unfit for pregnancy; therefore, tubal ligation probably also should be done. Thus one must conclude that complete abdominal hysterectomy probably is the treatment of choice with or without removal of the adnexa. Subsequent sections of the cervix will indicate whether sterilization by irradiation should follow; a young woman is less of a pelvic cripple if the adnexa are left intact.

One who attempts this new field should either be thoroughly acquainted with pathologic technics and diagnosis or have a pathologist who sees eye to eye with him, because, if the pathologist will not call a lesion cancer, then he will not agree that one has cured cancer or lessened the incidence of invasive cancer. Until more is known about the entire subject and unless one has the benefit of excellent pathologic facilities, the treatment of choice of any carcinoma of the cervix still is radium followed by roentgen irradiation.

SEDIMENTATION RATES IN CHILDREN

To the Editor:—What conditions in children, other than acute rheumatic fever and acute nephritis, are associated with rapid sedimentation rates? What is the normal range for sedimentation rate in children (Rourke-Ernstene; Wintrobe-Landsberg; Westergren; Linzenmeier, and Cutler)?

Emanuel Goldberger, M.D., New York.

ANSWER.—The conditions in children, other than acute rheumatic fever and acute nephritis, that are associated with a rapid sedimentation rate would be about the same as those observed in adults. In general, an increase in sedimentation rate occurs with most pyogenic infections, but may be absent with many virus infections and with certain of the contagious diseases of childhood. In trauma such as fractures and uncomplicated, uninfected operations there will usually be a progressive rise and then fall in the sedimentation rate. Malignant tumors, leukemia or lymphoma may be associated with increased sedimentation rate, especially when metastatic or associated with the necrosis of tissue. In nephrosis associated with increase in serum cholesterol, there is an increase in the sedimentation rate. Also, in liver disease there may be an increase in the sedimentation rate due to an increase in plasma fibrinogen; in chronic liver disease there may be an increase in serum globulin with an elevated sedimentation rate. In general, tissue injury is followed by an increase in plasma fibrinogen that is reflected in the increased sedimentation rate.

For the Rourke-Ernstene method, the normal range is 0.05 to 0.50 mm. per minute. For the Wintrobe-Landsberg method,

an important revision has been made in the method of correction of the sedimentation rate by the hematocrit. This is described in Wintrobe's (M. M.) Clinical Hematology (ed. 2, Lea & Febiger, 1946, p. 332). In this revision, the sedimentation rate of all blood samples is corrected to a hematocrit of 47 per cent, giving a single normal standard for adults and children of from 0 to 6 mm. in one hour. An important addition to the correction method has been reported by Whitby and Britton (Disorders of the Blood, ed. 5, Philadelphia, Blakiston Company, 1946, p. 606). These authors have studied the observed sedimentation rate by the Wintrobe-Landsberg method as it occurred in blood samples with varying degrees of increase in sedimentation rate; the only variable that they introduced was a change in the hematocrit. From this study they have produced a satisfactory correction chart, which is clearer and more usable than the original method.

For the Westergren method, there is no reported change, the normal range being about 1 to 10 mm. in one hour. The reader is cautioned to use the Westergren original method, which employs a concentration of sodium citrate solution, 3.8 Gm. per hundred cubic centimeters of distilled water; 0.2 cc. of the anticoagulant is mixed with 0.8 cc. of blood. The use of other anticoagulants, such as dry ammonium and potassium oxalate mixture, will give more rapid results. There is no known change in the values employing the Linzenmeier and Cutler methods.

ASSESSMENT OF THE PERSONALITY STRUCTURE

To the Editor:—What is the clinical value of the Rorschach test? Is it a test to be used only when the specialist is in doubt whether the patient has a severe neurosis or a beginning breakdown, or is the test also of value when performed at the request of a corporation or society on a person who feels completely healthy, who is working without difficulty and who has not been considered as abnormal? *M.D., Tennessee.*

Answer.—The Rorschach test is one of a number of psychologic tests which have been found to have special value in the assessment of the personality structure in the normal as well as the pathologic range. The relative objectivity of psychologic tests makes the results valuable in supplementing impressions and judgments gained through such objective technics as interviewing. Furthermore, the results give a cross-sectional, current evaluation of the personality resources and limitations which makes an excellent supplement to the type of information gained through the history of the person. Because the material obtained through the use of projective technics such as the Rorschach test is not as subject to the conscious control of the subject as material obtained through direct questioning, occasional personality difficulties not yet apparent clinically may be unearthed. These values hold equally well for professional and for other groups.

The increasing use of psychologic tests, including the Rorschach, by the armed forces and by industry attests to the practical nature of their contribution. Several schools of psychotherapy, where applicants for admission to the school are carefully interviewed by psychiatrists, and where detailed histories are obtained, have found the use of projective technics valuable for the reasons previously noted in aiding the selection of the most desirable types of personality for the particular demands of this specific vocation. However, all psychometric tests are useful only when taken in conjunction with adequate clinical evaluation.

LOCATING LARVAE IN THE SKIN

To the Editor: What is the technic for using cedarwood oil to locate the larvae of Ancylostoma braziliense in living skin in cases of larva migrans? The procedure is mentioned but not described in *Manson's Tropical Diseases.* *M.D., Florida.*

Answer.—The following technic is given by H. H. Bayley (*Tr. Roy. Soc. Trop. Med. & Hyg.* **34**: 399-400, 1941) for larva migrans produced by fly and hookworm larvae: After the skin is thoroughly dried and cleaned with alcohol, cedar-wood oil is used to clear the area. It can then be examined with a dissecting microscope or a good hand lens. The ends of the burrow are carefully examined for the larva, which appears as a white spheric mass due to the presence of surrounding plasma. After the position of the larva is noted the skin is cleaned for surgical operation and 2 minims (0.12 cc.) of a 1:1,000 solution of procaine hydrochloride is used to anesthetize a ½ inch (1.27 cm.) area surrounding the larva. A cautery is applied until a small burn is produced. Bayley prescribed sulfanilamide 7½ grains (0.5 Gm.) for two days and stated that it helps the burrows to heal, as they are obviously contaminated with bacteria. Much of the itching is due to this secondary infection.

TOXICITY OF COTTON SPRAY

To the Editor:—A young white man was first seen on July 31 with fever, abdominal cramps, profuse diarrhea, headache, extreme weakness and faintness on exertion. The fever and diarrhea subsided in three days, but he continued to complain of extreme weakness, vertigo and burning in the epigastrium. Treatment consisted of two injections of repository penicillin and cremosuxidine® (succinylsulfathiazole preparation) in ordinary dosage for four or five days. He had worked during the previous three weeks at an experimental station and had used many different varieties of chemicals for spraying cotton, but chiefly calcium arsenate and a new one called toxaphene. He did not use a mask as instructed. He had noticed, for about two weeks before he became ill, some degree of nausea, weakness and burning in the epigastrium (particularly after working with the calcium arsenate). Physical examination did not reveal anything significant except pronounced pallor of the conjunctiva. Examination of the blood showed 2,310,000 red blood cells per cubic centimeter, 9 Gm. hemoglobin and 4,000 white blood cells, with a normal differential count. A sample of blood was sent to a pathologist, who expressed the opinion that the patient had aplastic anemia. The patient had been treated with two transfusions of citrated blood, daily liver injections, multivitamins, folic acid and iron and appears to be making a satisfactory recovery. Is the calcium arsenate the likely offending agent? In the treatment of this type of anemia, after this period of time, are the red cell count and hemoglobin level, once they are increased to normal, likely to stay normal or would there be a tendency for anemia to recur, even though the offending agent is avoided in the future? How long should periodic examination of the blood be done? *John H. Groves, M.D., Leland, Miss.*

Answer.—With the exception of calcium arsenate and toxaphene, other chemicals are not identified and no reference is made to the vehicle in which these insecticides may have been suspended or dissolved. Consequently, this reply is directed to calcium arsenate and toxaphene, but the possibility of damage from others should not be ignored. Toxaphene is a chlorinated terpene with the empiric formula $C_{10}H_{10}Cl_8$. At times, toxaphene is dissolved in kerosene which is not innocuous. In dogs toxaphene has proved to be highly toxic. Deaths have resulted from oral doses as low as 15 mg. per kilogram of body weight. Similar work has indicated some damage following skin absorption. It also has been established that storage of this insecticide or some derivative occurs. The liver and kidneys were most damaged. From animal experiments it is not known that the cellular elements of the blood are damaged, which, in the present situation, may be of importance since anemia and leukopenia are reported in this query.

Possibly more consideration may be given to the calcium arsenate, which could account for the manifestations indicated, but the picture is not typical of arsenic poisoning. The case against arsenic would be strengthened if there had occurred skin involvement, coryzal manifestations, neuritis, loss of hair and damage to the nails. The clinical description resembles more closely the condition produced by benzene or some similar chemical substance. Somewhat characteristically, benzene poisoning leads to anemia and leukopenia, but frequently it is accompanied with superficial hemorrhage. The following items are suggested for further exploration:

1. Rule out a primary anemia unrelated to work causes.

2. Procure properly made chemical analyses of hair for arsenic. Normal hair may contain arsenic in the order of 0.2 mg. per hundred grams of hair. In arsenic poisoning, ten times this quantity, more or less, may be detected. It is necessary to determine that an arsenic-containing hair "tonic" was not used. Arsenic in the hair may persist for six or eight months after initial exposure.

3. Make further inquiry as to other substances to which exposure may have been provided, such as benzene, but it does not necessarily follow that such a substance as benzene hexachloride (666), however toxic, would have produced the state described.

4. Because of the season, it is unlikely that similar exposure may arise until spring. Even so, because of so many present uncertainties and because of demonstrated susceptibility, further exposure should be avoided, especially in the absence of protection.

Recovery appears to be complete, but if pernicious anemia is the cause, this might represent only a remission. If arsenic is found to be the cause, further damage or sequelae need not be expected. If benzene or any substance capable of producing benzene-like blood damage is responsible, which could lead to an aplastic anemia, the present apparent recovery may persist, but there would be a possibility of further anemia after the cessation of treatment. From the information furnished it is difficult to suggest further treatment. Depending on what other etiologic factors and clinical evidences are encountered, additional blood examinations should be made at intervals of one or two months, certainly not longer than six months.

SLOUGH FOLLOWING CALCIUM LEVULINATE INTRAMUSCULARLY

To the Editor:—The only time I have used calcium levulinate was many years ago when the contents of a 10 cc. ampul were given into the quadriceps extensor muscle of the thigh in a newborn infant who had tetany. A large slough resulted. Is this a common result of intramuscular injection of this undiluted material? If dilution is necessary, what is the smallest proportion of diluent which must be used to insure against slough?

M.D., California.

ANSWER.—Although the concentration of the solution of calcium levulinate is not indicated, it is probable that a 10 per cent solution was used since that is the concentration most frequently marketed. Search of the literature has not disclosed any reports of abscess or slough following intramuscular use of calcium levulinate, but such reactions have been reported after the use of calcium gluconate in infants (Lamm, S. S.: *J. A. M. A.* **129**: 347 [Sept. 29] 1945).

New and Nonofficial Remedies, 1949, page 419, contains the following statement in the monograph on Calcium Compounds:

> The gluconate and levulinate salts, containing 9 and 13 per cent calcium respectively, are relatively nonirritating for subcutaneous or intramuscular injection. Muscle necrosis, however, has followed such administration in children, so that the injection of calcium compounds into the tissues should be restricted to adults.

The United States Dispensatory, 1947, states:

> The Food and Drug Administration (*Trade Corres.* 7-A, March 12, 1946) has proposed that labels of calcium preparations intended for parenteral use bear a warning that the article should not be injected intramuscularly in infants and young children.

The report of Bakwin (Tetany in Newborn Infants, *J. Pediat.* **14**:1, 1939) states:

> When a quick result seems desirable, calcium should be given intravenously, preferably as the gluconate. Intramuscular injection is inadvisable, since calcification of the subcutaneous tissues with abscess formation is a not infrequent occurrence.

Kendig (Tetany in the Newborn Infant, *J. Pediat.* **21**: 510, 1942) states that "If the convulsions are severe or continuous, calcium gluconate (5 to 10 cc. of a 10 per cent solution) should be given intravenously. If the symptoms are less severe, a satisfactory result may be obtained by oral administration." This author states that "Intramuscular administration of calcium to newborn infants should be avoided, since abscess formation not infrequently follows."

It might also be mentioned that early in 1946 the Food and Drug Administration issued an announcement to manufacturers of calcium gluconate solutions intended for parenteral injection advising them that the labeling should bear a warning against intramuscular injection in children because of muscle necrosis that has followed this mode of injection. It appears unlikely that the levulinate salt is less hazardous from this standpoint, and most such solutions which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association do bear such a warning in the labeling.

PERIODICALLY PAINFUL BREASTS

To the Editor:—A patient, age 35, had a hysterectomy and oophorectomy about five years ago, leaving one ovary. She has had no hot flushes or symptoms of menopause. Periodically, at what would be her menstrual period, she has severe, congestive and painful enlargement of both breasts which lasts about one week. I have tried surgical supports, injections of both estrogenic material and progestrone with no success. At present I am trying large doses of testosterone propionate. Have you any suggestions? This patient has been seen by consultants in Indianapolis and gynecologists in Chicago without any relief.

M.D., Indiana.

ANSWER.—In most cases like this one, small doses of testosterone propionate give considerable relief. The patient should take a 10 mg. tablet of methyl testosterone by mouth daily for each of the ten days before the onset of "what would be her menstrual period." This therapy may have to be repeated every month for several months, but there is no harm in it. When these breast enlargements are associated with other signs and symptoms of premenstrual tension and sometimes even when they are not, ammonium chloride may be of great help. The patient should take 15 mg. of ammonium chloride three times a day during each of the fourteen days before the onset of the symptoms of the menstrual period. During these fourteen days, table salt should be eliminated from the diet. Chorionic gonadotropin is not indicated in this type of patient. It is assumed that the remaining ovary is normal as far as can be determined by bimanual examination.

SCHISTOSOMIASIS

To the Editor:—Is a diagnosis of schistosomiasis probable in the following case, and if so, what is the treatment of choice? A 37 year old white man in 1944, in Lisbon, Portugal, had diarrhea and nausea, followed by an infection of the respiratory tract associated with nonproductive cough and fever. Complete recovery apparently was made in about three weeks. In January 1945, he had almost identical symptoms, requiring about one month for recovery. In September 1945, he experienced sudden severe epigastric pain, which was relieved by intravenous administration of atropine. This was the first of a series of episodes of severe pain, which recurred at irregular intervals. In December 1945, a moderately severe, intermittent type of pain developed in the left lower abdominal quadrant, for which he was examined at an Army hospital in Frankfurt, Germany. Sigmoidoscopy revealed shallow ulceration in the rectal mucosa resembling that seen in amebiasis. Ova were not found, and there was no eosinophilia at that time. The mucosa returned to normal within twelve days without specific therapy. He felt well for six months except for occasional cramplike pain in the lower part of the abdomen. In 1946 he was examined in an Army hospital in Berlin, Germany, and a diagnosis of functional disorder was made. He returned to the United States in 1946 and consulted me. Roentgenographic examination suggested duodenal ulcer. In October 1947, bleeding of the intestinal tract began. Repeat roentgenographic studies seemed to confirm the diagnosis of duodenal ulcer, and after consultations a gastrectomy was performed. No ulcer was seen in the removed specimen, which contained the first portion of the duodenum. The bleeding ceased immediately after operation, and the patient appeared to be well except for a loss of 30 pounds (14 Kg.). In May 1949, after severe epigastric pain, the stool again became tarry. The patient was admitted to a hospital. Results of all tests of hepatic function were normal. Pain at the tip of the penis was experienced after urination for a period of five days. His abdomen was explored by operation, and the gastrointestinal tract was found to be normal with the exception of the gallbladder and the common bile duct, which were distended with blood. The gallbladder was removed. The common bile duct was opened and blood was seen emerging from both hepatic ducts. Bleeding ceased after the operation, and the patient made a good recovery. In August 1949, signs and symptoms of pneumonia of the lower lobe of the right lung developed which responded to penicillin and aureomycin therapy. After this he again suffered epigastric pain associated with tarry stools. The patient had had a toxoplasma of the testis (Friedman reaction negative) in 1931, for which he was given irradiation therapy and an appendectomy in 1936. The patient admits swimming in the Mediterranean on numerous occasions at Estoril and Arrabida (near Lisbon, Portugal) and soon at Sitges (near Barcelona, Spain). Is one justified in treating the patient for schistosomiasis without first making a definite diagnosis?

Hyar Goldschmidt, M.D., New Britain, Conn.

ANSWER.—The clinical picture although not typical is sufficient to suggest schistosomiasis. From the geomedical viewpoint the Schistosoma haematobium, but not Schistosoma mansoni or Schistosoma japonicum, might be suspected if the patient had gone swimming in any one of the three reported areas of infection in Algarve Province in South Portugal. These areas are reported to be at Alportel, Estoi and Taviro, recently considered by some workers as doubtfully endemic. Investigations have not shown that the places referred to near Lisbon and Barcelona are sources of infection. Living in certain areas in the Far East, Africa or Latin America might support the suspicion of schistosome infection. S. haematobium predilection for the urinary bladder would call for thorough cystoscopic examination. The tentative diagnosis of schistosomiasis without detection of ova should be confirmed by intradermal and complement fixation tests before treatment. Cercarial antigen is reported to produce better intradermal results than adult antigen. Treatment without a definite diagnosis should be the last resort.

Evidence of hepatic disease requires special precaution in the use of antimony compounds. There is the danger of toxic nephrosis even in the use of stibophen, which is less toxic but less efficacious than potassium or sodium antimony tartrate. Antimony lithium thiomalate is reported to be intermediate in toxicity between antimony potassium tartrate and stibophen. Many favorable reports have been written concerning its efficacy, and it is preferred by some workers. The limit between toxic dose and effective therapeutic dose is narrow.

SCABIES AFFECTING EYELASHES

To the Editor:—A mother stated that the eyelids of her son, aged 30 months, had looked irritated for the past ten days. On examination of an eyelash with a magnifying glass and later with the low power field of the microscope, I found several typical female *Sarcoptes scabiei*. Search in his hair and of the skin of his entire body revealed no evidence of dermatosis. Have similar cases of such localization of this disease been reported? I have prescribed 0.5 per cent ophthalmic zinc sulfate ointment.

Peter J. Kitzberger Jr., M.D., New Ulm, Minn.

ANSWER.—Cases of scabies affecting eyelashes apparently have not been reported. Infestation with pediculi is said to occur on rare occasions, and in such cases yellow mercuric oxide ointment is used or even plain petrolatum may be used to dislodge or suffocate the organisms.

GROUP AB INDIVIDUALS AS UNIVERSAL RECIPIENTS

To the Editor:—We have set up a blood bank at this hospital. Is it permissible to give an AB recipient blood from an A, B or O donor, provided the major side of the cross matching is compatible? This question has arisen because we have not had AB donor blood available at all times.

M.D., Illinois.

ANSWER.—In general it is best that each patient be given only blood of his own blood group. In emergencies, however, it is permissible to give to group AB recipients blood from group O, group A and group B donors provided the major side of the cross matching is compatible. Situations also arise wherein a group AB Rh-negative recipient has been sensitized to the Rh factor, and no group AB Rh-negative blood is available; in such cases Rh-negative blood of group A, group B or group O may be used. The precaution should be taken to titrate the isoantibodies in the donor's plasma and to reject the donors with a high titer in order to avoid hemolysis of the recipient's own cells. If there is not sufficient time for a titration, it is permissible to add A and B group substances to the donor's blood instead.

References:

Wiener, A. S.: Blood Groups and Transfusion, ed. 3, Springfield, Ill., Charles C Thomas, Publisher, 1946.

DeGowin, E. L.; Hardin, R. C., and Alsever, J. B.: Blood Transfusion, Philadelphia, W. B. Saunders Company, 1949.

Strumia, M. M., and McGraw, J. J.: Blood and Plasma Transfusion, Philadelphia, F. A. Davis Company, 1949.

PSYCHOLOGIC DEVELOPMENT OF THE CHILD

To the Editor:—A normal husband and wife have two normal children aged 3 and 6 years. They are anxious to have a third child, but since the mother of the husband had a recent psychosis, for which electric shock treatment was effectively used, and the mother had an aged uncle who died in a mental institution they are concerned about the possibility of having a psychotic child. What would be the risk?

M.D., Pennsylvania.

ANSWER.—What is a normal husband or normal wife? Maybe the mother of the husband was a normal woman until a psychosis developed. Who can tell to what the psychosis was due? It may have been one of the so-called involutional psychoses, which unquestionably have some relation to the endocrine system. Of what did the aged uncle die in a mental institution? Maybe his mental state was based on deterioration due to arteriosclerosis or some other abnormality in the brain, which often occurs as one grows older. On the basis of this family history it is difficult to say whether or not the third child is likely to inherit a defective mental state; they have already risked having two; they should have the third if they wish it, but should pay attention to the development of the child psychologically. Environment often is the factor that has to do with the emotional state of the offspring.

ARSENIC TRIOXIDE IN DRINKING WATER

To the Editor:—The water supply here has been found to contain 0.02 parts per million of arsenic trioxide (as As_2O_3). Is this water safe for drinking purposes?

L. V. Mason, M.D., Bridge River, British Columbia.

ANSWER.—Although the problem of arsenic contamination of drinking water has not arisen in the United States, this possibility has been recognized by the fact that standards for drinking water were promulgated by the United States Public Health Service (*Pub. Health Rep.* **61**:371, 1946). The item relating specifically to arsenic states that the presence of arsenic in excess of 0.05 parts per million would constitute grounds for rejection of the supply. In view of the fact that the international standard limits arsenic oxide in foods to 1.4 parts per million, and the Royal Commission of Great Britain places the limit in liquid foods at 0.14 parts per million, there is no reason to be concerned over the public health hazard of drinking water containing 0.02 parts per million of arsenic trioxide.

METHISCHOL AND CORONARY DISEASE

To the Editor:—What is the consensus on the use of methischol® in patients with previous coronary disease who show a high cholesterol blood level?

A. E. Powell, M.D., Madison, Va.

ANSWER.—Methischol® is said to be marketed in the form of capsules or as a syrup. Three capsules or 1 tablespoon of the syrup is reported to contain *dl*-methionine, 333 mg.; choline, 250 mg.; inositol, 166 mg., and the vitamin B complex from 12 Gm. of liver. There is no satisfactory evidence that any of these substances singly or in combination will provide a significant alteration in the cholesterol content of the blood. There are no satisfactory controlled observations which demonstrate beyond doubt that the use of this or similar preparations favorably affect coronary heart disease. Some reports to this effect have appeared in the literature, but the work has been poorly controlled and the precise etiologic factor of the coronary disease in the patients studied was not determined; hence, the role that cholesterol deposition played in the disease remains undetermined. It must be remembered that most diets provide amounts of methionine and choline far in excess of the quantities provided by a preparation such as methischol.®

PHLYCTENULAR KERATOCONJUNCTIVITIS

To the Editor:—A patient, twenty-two years old, has had phlyctenular keratoconjunctivitis for twenty years. Manifestations began at the age of 11, at which time the conjunctivitis became worse. It is worse in the summer and better in winter months. She did not have it when she was pregnant, although she was pregnant during summer months. Chloramphenicol therapy does not help. Would diethylstilbestrol be of value?

Hubie H. Price, M.D., Lamesa, Texas.

ANSWER.—Phlyctenular keratoconjunctivitis represents a reaction of hypersensitive corneal and conjunctival epithelium to protein, usually the tuberculoprotein. General measures are important in the treatment of the condition. Cleanliness, a high vitamin and low carbohydrate diet, abundance of fresh air day and night and elimination of infective foci are indicated. Occasionally desensitization to the tuberculoprotein in sensitive persons is valuable. The value of hormone treatment is questionable.

PROLONGED ACTION OF PROCAINE PENICILLIN

To the Editor:—In Queries and Minor Notes in *The Journal*, January 14, page 143, a statement is made concerning procaine penicillin G in oil containing 2 per cent aluminum monostearate, which may create the impression that the injection of 1 cc. of this preparation will invariably give an average serum penicillin concentration of 0.04 units per cubic centimeter at the end of ninety-six hours. Because of apparent discrepancies in the ability of various lots of this preparation to prolong blood concentrations of penicillin we have made an intensive clinical study. Certain lots tested in the clinics were found to meet the label claim of demonstrable blood concentrations of penicillin (0.03 unit per cubic centimeter) in the blood of 90 per cent of patients for a period of ninety-six hours or more. Other lots of the same manufacturer failed to meet such a claim by a considerable margin. We have now completed studies of every manufacturer's preparation and are convinced that it is not possible for any manufacturer to consistently produce a preparation that will give ninety-six hour blood level concentrations of penicillin in 90 per cent of the patients treated.

We have therefore notified all manufacturers of this product that in the future no specific statement pertaining to or referring to duration of blood concentrations of penicillin may appear on the label attached to the container. We do not object, however, to a statement that it is a product for "prolonged blood levels." We have requested also that the following statement, underlined, should appear immediately after any statement pertaining to blood levels:

"Although penicillin in the body may be detected, 'demonstrable blood level' does not necessarily mean that penicillin is present in concentrations which are therapeutically effective. Dosage and frequency of administration should be governed by the clinical response of the patient to treatment and the nature of the disease."

Henry Welch, Ph.D., Director, Division of Antibiotics, Food and Drug Administration, Washington 25, D. C.

PENICILLIN STORED IN A PARKED CAR

To the Editor:—In Queries and Minor Notes in *The Journal*, January 21, page 210, reference is made to the stability of procaine penicillin in oil. The answer given was incorrect. The question put to the Editor was "whether procaine penicillin in oil loses its potency when carried in a physician's bag stored in an automobile" where temperatures range from "120 or 140 F." The answer was in part as follows: "Federal Law states that any salt or crystalline penicillin G, prior to certification, shall not show a loss of more than 10 per cent of its original potency when stored . . . ." In this answer apparently reference is made to section 146.24 of the penicillin regulations, which refers to the heat stability of crystalline penicillin. Please note, however, that the exact wording is as follows: "Crystalline penicillin is the heat stable crystalline sodium or potassium salt of one or more kinds of penicillin . . . ." No reference is made to procaine penicillin in this monograph.

In section 146.44 procaine penicillin is described, and it is not described as a heat stable salt of penicillin. As a matter of fact, procaine penicillin is not heat stable, having a critical temperature of about 38 C. Since it is a hydrate, it begins to lose water at this temperature and decomposes. The lower temperatures referred to in the query (120 F. [49 C.]) would probably not materially affect the potency of procaine penicillin in oil. However, if procaine penicillin in oil is left at temperatures of 140 F. (60 C.) for any extended period of time, certainly some decomposition would take place.

Henry Welch, Ph.D., Director, Division of Antibiotics, Food and Drug Administration, Washington 25, D. C.